CLAIMS

1. A compound which comprises a therapeutic polypeptide linked to an albumin binding residue via a hydrophilic spacer.

2. A compound which comprises a therapeutic polypeptide linked to an albumin binding residue via a hydrophilic spacer $-(CH_2)_lD[(CH_2)_nE]_m(CH_2)_pQ_q-$, wherein

l, m and n independently are 1-20 and p is 0-10,

Q is $-Z-(CH_2)_lD[(CH_2)_nG]_m(CH_2)_p-$,

q is an integer in the range from 0 to 5,

each D, E, and G independently are selected from -O-, $-NR^3-$, $-N(COR^4)-$, $-PR^5(O)-$, and $-P(OR^6)(O)-$, wherein R^3, R^4, R^5, and R^6 independently represent hydrogen or C_{1-6}-alkyl,

Z is selected from -C(O)NH-, $-C(O)NHCH_2-$, -OC(O)NH -, $-C(O)NHCH_2CH_2-$, $-C(O)CH_2-$, -C(O)CH=CH-, $-(CH_2)_s-$, -C(O)-, -C(O)O- or -NHC(O)-, wherein s is 0 or 1

or a pharmaceutically acceptable salt or prodrug thereof.

3. A compound according to claim 2, which has the formula (I) :

A—W—B—Y—therapeutic polypeptide (I)

wherein

A is an albumin binding residue,

B is a hydrophilic spacer being $-(CH_2)_lD[(CH_2)_nE]_m(CH_2)_pQ_q-$, wherein

l, m and n independently are 1-20 and p is 0-10,

Q is $-Z-(CH_2)_lD[(CH_2)_nG]_m(CH_2)_p-$,

q is an integer in the range from 0 to 5,

each D, E, and G independently are selected from -O-, $-NR^3-$, $-N(COR^4)-$, $-PR^5(O)-$, and $-P(OR^6)(O)-$, wherein R^3, R^4, R^5, and R^6 independently represent hydrogen or C_{1-6}-alkyl,

Z is selected from -C(O)NH-, $-C(O)NHCH_2-$, -OC(O)NH -, $-C(O)NHCH_2CH_2-$, $-C(O)CH_2-$, -C(O)CH=CH-, $-(CH_2)_s-$, -C(O)-, -C(O)O- or -NHC(O)-, wherein s is 0 or 1,

Y is a chemical group linking B and the therapeutic agent, and

W is a chemical group linking A and B.

4. A compound according to claim 2, which has the formula (II)

A–W—B—Y–therapeutic polypeptide —Y′–B′-W′—A′ (II)

wherein

A and A′ are albumin binding residues,

B and B′ are hydrophilic spacers independently selected from $-(CH_2)_lD\,[(CH_2)_nE]_m(CH_2)_p-Q_q-$, wherein

l, m and n independently are 1-20 and p is 0-10,

Q is $-Z-(CH_2)_lD[(CH_2)_nG]_m(CH_2)_p-$,

q is an integer in the range from 0 to 5,

each D, E, and G independently are selected from -O-, $-NR^3-$, $-N(COR^4)-$, $-PR^5(O)-$, and $-P(OR^6)(O)-$, wherein R^3, R^4, R^5, and R^6 independently represent hydrogen or C_{1-6}-alkyl,

Z is selected from $-C(O)NH-$, $-C(O)NHCH_2-$, $-OC(O)NH-$, $-C(O)NHCH_2CH_2-$, $-C(O)CH_2-$, $-C(O)CH=CH-$, $-(CH_2)_s-$, -C(O)-, -C(O)O- or -NHC(O)-, wherein s is 0 or 1,

Y is a chemical group linking B and the therapeutic agent, and

Y′ is a chemical group linking B′ and the therapeutic agent, and

W is a chemical group linking A and B, and

W′ is a chemical group linking A′ and B′.

5. A compound according to claim 4, wherein Y′ is selected from the group consisting of $-C(O)NH-$, $-NHC(O)-$, $-C(O)NHCH_2-$, $-CH_2NHC(O)-$, $-OC(O)NH-$, $-NHC(O)O-$, $-C(O)NHCH_2-$, $CH_2NHC(O)-$, $-C(O)CH_2-$, $-CH_2C(O)-$, $-C(O)CH=CH-$, $-CH=CHC(O)-$, $-(CH_2)_s-$, -C(O)-, -C(O)O-, -OC(O)-, -NHC(O)- and –C(O)NH-, wherein s is 0 or 1.

6. A compound according to any one of claims 4-5, wherein W′ is selected from the group consisting of $-C(O)NH-$, $-NHC(O)-$, $-C(O)NHCH_2-$, $-CH_2NHC(O)-$, $-OC(O)NH-$, $-NHC(O)O-$, $-C(O)CH_2-$, $-CH_2C(O)-$, $-C(O)CH=CH-$, $-CH=CHC(O)-$, $-(CH_2)_s-$, -C(O)-, -C(O)O-, -OC(O)-, -NHC(O)- and –C(O)NH-, wherein s is 0 or 1.

7. A compound according to claim 2, which has the formula (III)

wherein

A and A′ are albumin binding residues,

B is a hydrophilic spacer selected from $-(CH_2)_lD[(CH_2)_nE]_m(CH_2)_p-Q_q-$ wherein

l, m and n independently are 1-20 and p is 0-10,

Q is $-Z-(CH_2)_lD[(CH_2)_nG]_m(CH_2)_p-$,

q is an integer in the range from 0 to 5,

each D, E, and G are independently selected from -O-, $-NR^3-$, $-N(COR^4)-$, $-PR^5(O)-$, and $-P(OR^6)(O)-$, wherein R^3, R^4, R^5, and R^6 independently represent hydrogen or C_{1-6}-alkyl,

Z is selected from $-C(O)NH-$, $-C(O)NHCH_2-$, $-OC(O)NH-$, $-C(O)NHCH_2CH_2-$, $-C(O)CH_2-$, $-C(O)CH=CH-$, $-(CH_2)_s-$, -C(O)-, -C(O)O- or -NHC(O)-, wherein s is 0 or 1,

Y is a chemical group linking B and the therapeutic agent, and

W'' is a chemical group linking B with A and A'.

8. A compound according to claim 7, wherein W'' is selected from the group consisting of $-C(O)NHCH-$, $-C(O)CH-$, $-(CH_2)_sCH-$, and $-NHC(O)CNHC(O)CH_2O(CH_2)_2O(CH_2)_2NH-$, wherein s is 0, 1 or 2.

9. A compound according to any one of claims 3-8, wherein Y is selected from the group consisting of $-C(O)NH-$, $-NHC(O)-$, $-C(O)NHCH_2-$, $-CH_2NHC(O)-$, $-OC(O)NH-$, $-NHC(O)O-$, $-C(O)NHCH_2-$, $CH_2NHC(O)-$, $-C(O)CH_2-$, $-CH_2C(O)-$, $-C(O)CH=CH-$, $-CH=CHC(O)-$, $-(CH_2)_s-$, -C(O)-, -C(O)O-, -OC(O)-, -NHC(O)- and –C(O)NH-, wherein s is 0 or 1.

10. A compound according to any one of claims 3-9, wherein W is selected from the group consisting of $-C(O)NH-$, $-NHC(O)-$, $-C(O)NHCH_2-$, $-CH_2NHC(O)-$, $-OC(O)NH-$, $-NHC(O)O-$, $-C(O)CH_2-$, $-CH_2C(O)-$, $-C(O)CH=CH-$, $-CH=CHC(O)-$, $-(CH_2)_s-$, -C(O)-, -C(O)O-, -OC(O)-, -NHC(O)- and –C(O)NH-, wherein s is 0 or 1.

11. A compound according to any one of claims 2-10, wherein l is 1 or 2, n and m are independently 1-10 and p is 0-10.

12. A compound according to any one of claims 2-11, wherein D is –O-.

13. A compound according to any one of claims 2-12, wherein E is –O-.

14. A compound according to any one of claims 2-10, wherein the hydrophilic spacer is

$-CH_2O[(CH_2)_2O]_m(CH_2)_pQ_q-$, where m is 1-10, p is 1-3, and Q is $-Z-CH_2O[(CH_2)_2O]_m(CH_2)_p-$.

15. A compound according to any of the previous claims, wherein q is 0 or 1.

16. A compound according to any of the previous claims, wherein q is 1.

17. A compound according to any one of claims 2-10 and 12-15, wherein G is –O-.

18. A compound according to any of the previous claims, wherein Z is selected from the group consisting of -C(O)NH-, $-C(O)NHCH_2-$, and –OC(O)NH-.

19. A compound according to any one of claims 2-15, wherein q is 0.

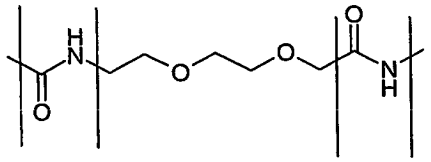
20. A compound according to any one of claims 2-13, wherein l is 2.

21. A compound according to any of the previous claims, wherein n is 2.

22. A compound according to any one of claims 2-15, wherein the hydrophilic spacer B is $-[CH_2CH_2O]_{m+1}(CH_2)_pQ_q-$.

23. A compound according to any one of claims 2-15, wherein the hydrophilic spacer B is $-(CH_2)_l-O-[(CH_2)_n-O]_m-(CH_2)_p-[C(O)NH-(CH_2)_l-O-[(CH_2)_n-O]_m-(CH_2)_p]_q-$,
where l, m, n, and p independently are 1-5, and q is 0-5.

24. A compound according to any one of the preceding claims, wherein –W-B-Y- is selected from the group consisting of



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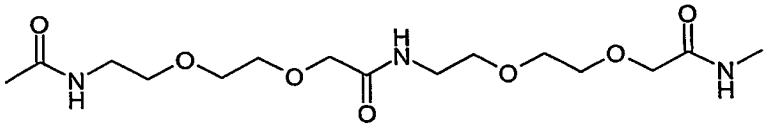
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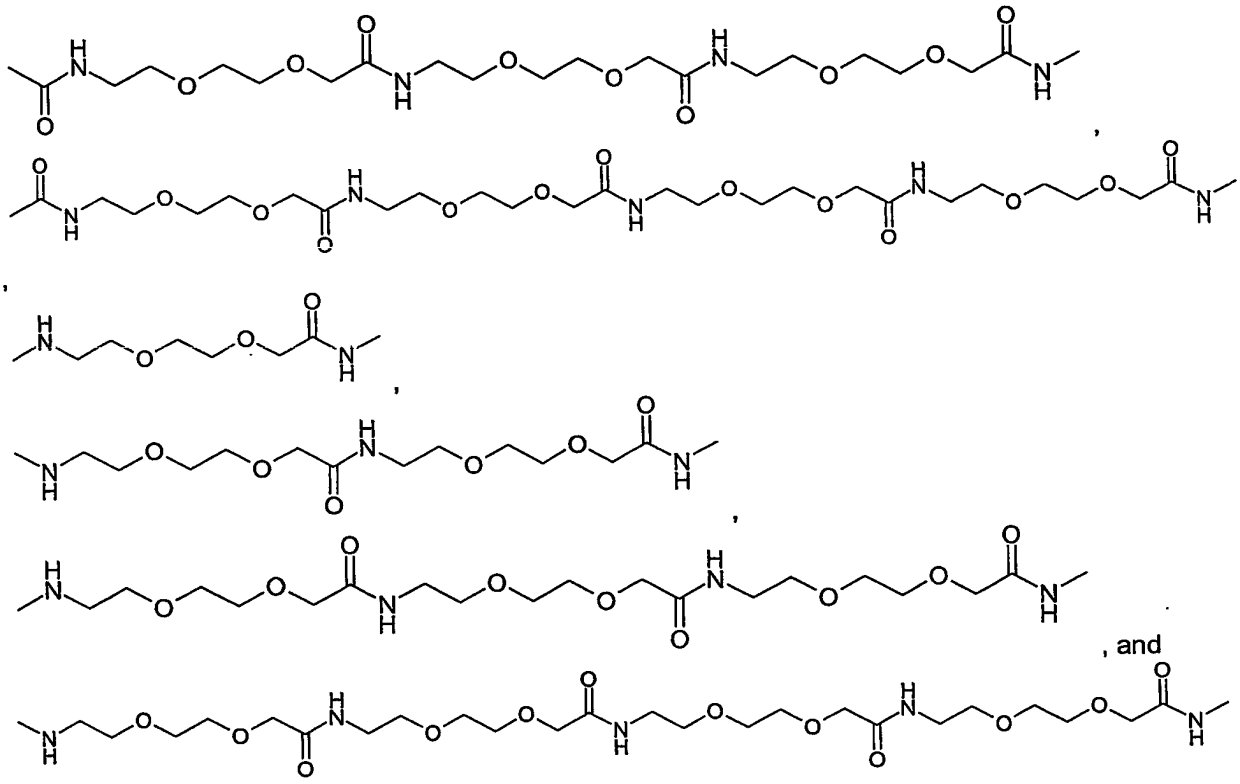
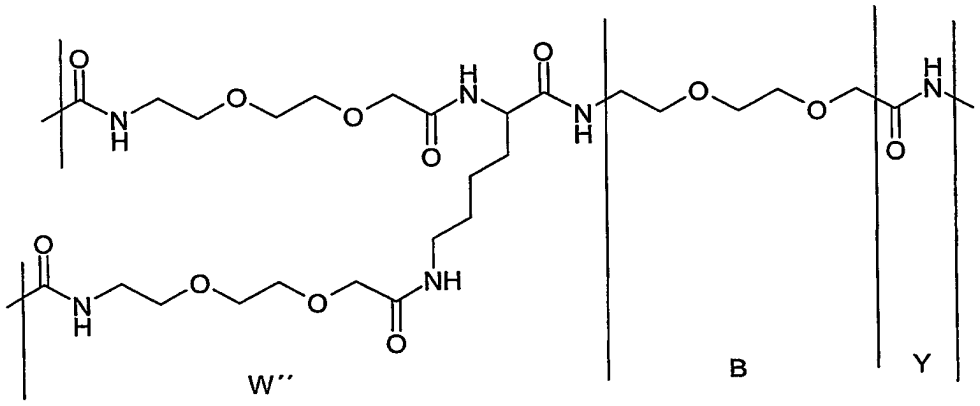
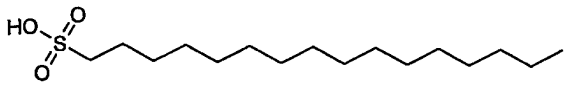


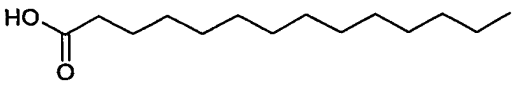
, and

25. A compound according to claim 7, wherein >W''-B-Y- is



26. A compound according to any one of the preceding claims, wherein A is selected from the group consisting of





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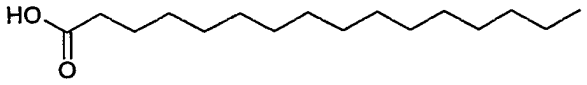

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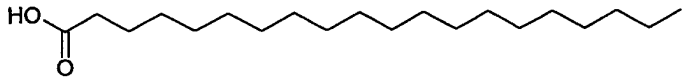

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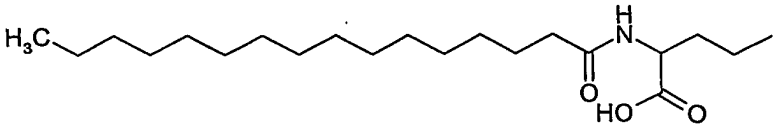
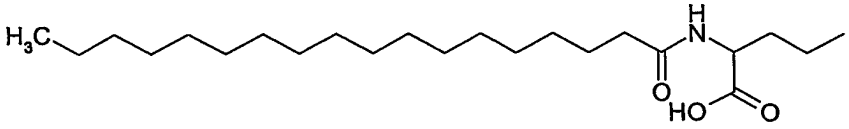
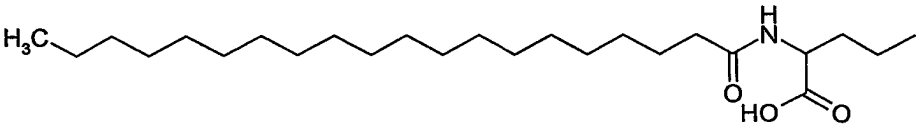


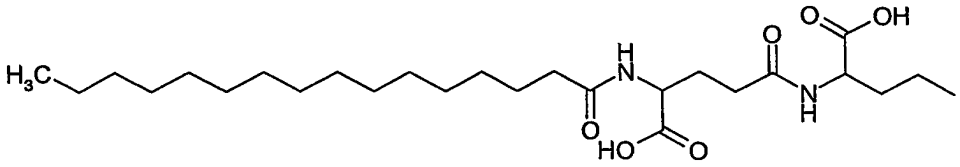
where the chiral carbon atom is either R or S,



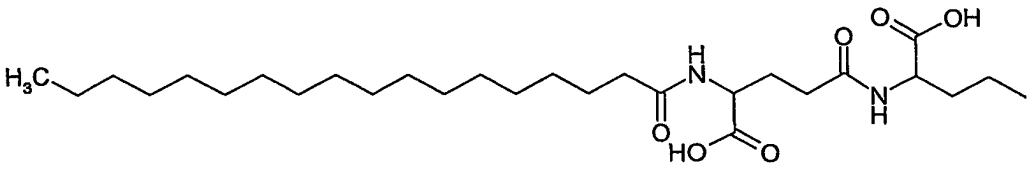
where the chiral carbon atom is either R or S,



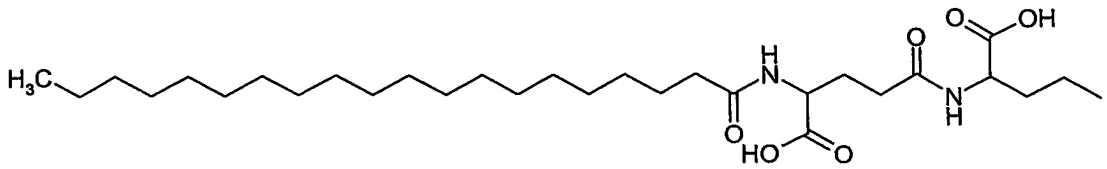
where the chiral carbon atom is either R or S,



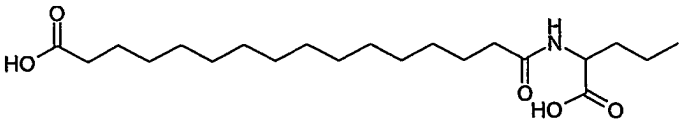
where the two chiral carbon atoms independently are either R or S,



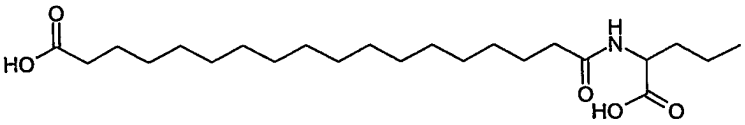
where the two chiral carbon atoms independently are either R or S,



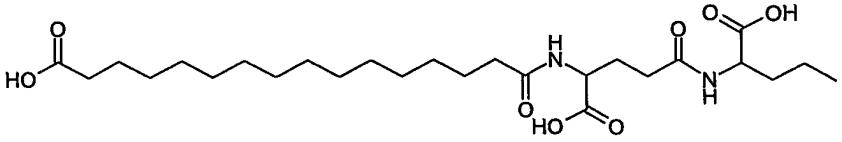
where the two chiral carbon atoms independently are either L or D,



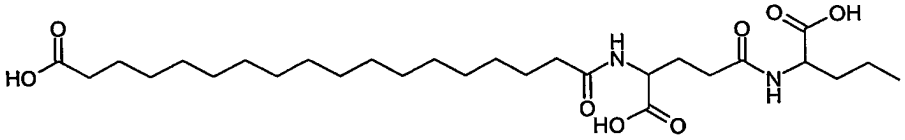
where the chiral carbon atom is either R or S,



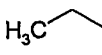
where the chiral carbon atom is either R or S,

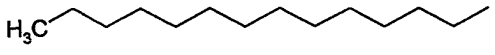


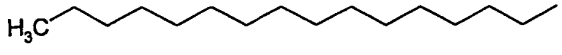
where the two chiral carbon atoms independently are either R or S,

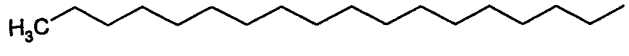


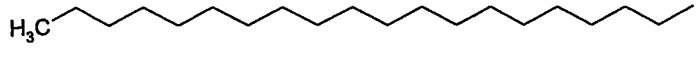
where the two chiral carbon atoms independently are either R or S,

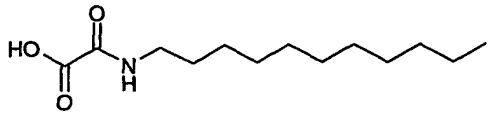
 ,

 ,

 ,

 ,

 ,



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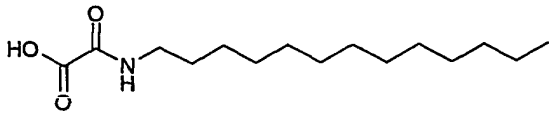

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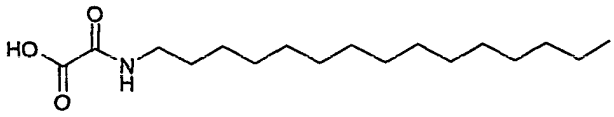

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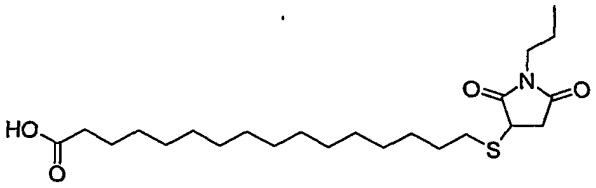

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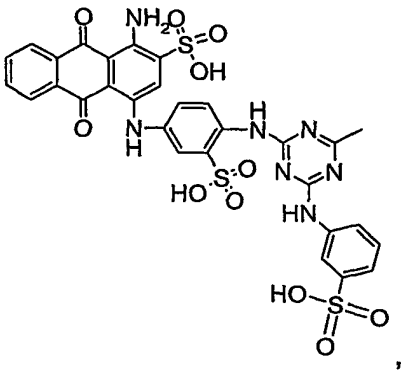

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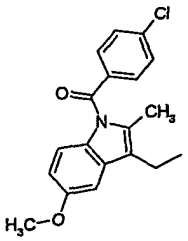

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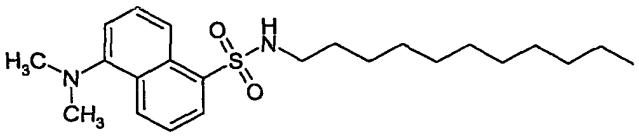

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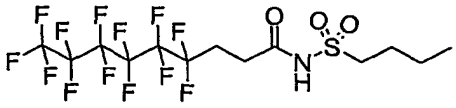

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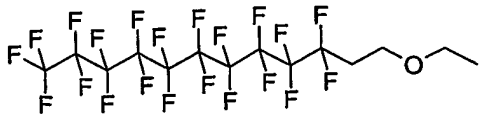
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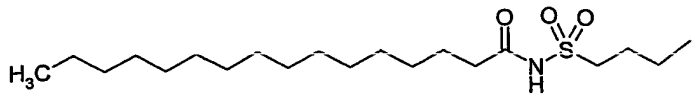
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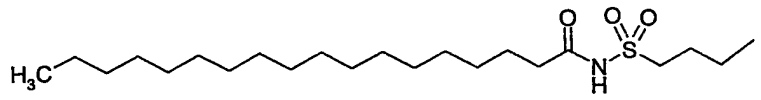
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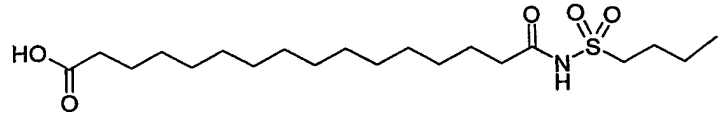
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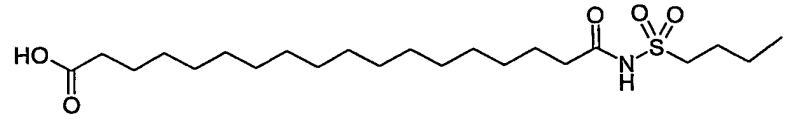
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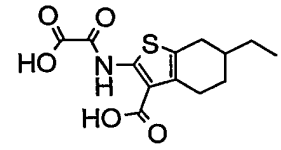


27. A compound according to any of the previous claims, wherein the molar weight of said hydrophilic spacer is in the range from 80D to 1000D or in the range from 80D to 300D.

28. A compound according to any of the previous claims, wherein said albumin binding residue is a lipophilic residue.

29. A compound according to any of the previous claims, wherein said albumin binding residue binds non-covalently to albumin.

30. A compound according to any of the previous claims, wherein said albumin binding residue is negatively charged at physiological pH.

31. A compound according to any of the previous claims, wherein said albumin binding residue has a binding affinity towards human serum albumin that is below about 10 μM or below about 1 μM.

32. A compound according to any of the previous claims, wherein said albumin binding residue is selected from a straight chain alkyl group, a branched alkyl group, a group which has an ω-carboxylic acid group, a partially or completely hydrogenated cyclopentanophenanthrene skeleton.

33. A compound according to any of the previous claims, wherein said albumin binding residue is a cibacronyl residue.

34. A compound according to any of the previous claims, wherein said albumin binding residue has from 6 to 40 carbon atoms, from 8 to 26 carbon atoms or from 8 to 20 carbon atoms.

35. A compound according to any of the previous claims, wherein said albumin binding residue is a peptide, such as a peptide comprising less than 40 amino acid residues.

36. A compound according to any one of the previous claims, wherein the albumin binding residue via spacer and linkers is attached to said therapeutic polypeptide via the ε-amino group of a lysine residue.

37. A compound according to any one of the previous claims, wherein the albumin binding residue via spacer and linkers is attached to said therapeutic polypeptide via a linker to an amino acid residue selected from cysteine, glutamate and aspartate.

38. A compound according to any of the previous claims, wherein said therapeutic polypeptide is a GLP-1 peptide.

39. A compound according to claim 34, wherein said polypeptide is a GLP-1 peptide comprising the amino acid sequence of the formula (IV):

Xaa_7-Xaa_8-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Xaa_{16}-Ser-Xaa_{18}-Xaa_{19}-Xaa_{20}-Glu-Xaa_{22}-Xaa_{23}-Ala-Xaa_{25}-Xaa_{26}-Xaa_{27}-Phe-Ile-Xaa_{30}-Trp-Leu-Xaa_{33}-Xaa_{34}-Xaa_{35}-Xaa_{36}-Xaa_{37}-Xaa_{38}-Xaa_{39}-Xaa_{40}-Xaa_{41}-Xaa_{42}-Xaa_{43}-Xaa_{44}-Xaa_{45}-Xaa_{46}

Formula (IV) (SEQ ID No: 2)

wherein

Xaa_7 is L-histidine, D-histidine, desamino-histidine, 2-amino-histidine, β-hydroxy-histidine, homohistidine, N^{α}-acetyl-histidine, α-fluoromethyl-histidine, α-methyl-histidine, 3-pyridylalanine, 2-pyridylalanine or 4-pyridylalanine;

Xaa_8 is Ala, Gly, Val, Leu, Ile, Lys, Aib, (1-aminocyclopropyl) carboxylic acid, (1-aminocyclobutyl) carboxylic acid, (1-aminocyclopentyl) carboxylic acid, (1-aminocyclohexyl) carboxylic acid, (1-aminocycloheptyl) carboxylic acid, or (1-aminocyclooctyl) carboxylic acid;
Xaa_{16} is Val or Leu;
Xaa_{18} is Ser, Lys or Arg;
Xaa_{19} is Tyr or Gln;
Xaa_{20} is Leu or Met;
Xaa_{22} is Gly, Glu or Aib;
Xaa_{23} is Gln, Glu, Lys or Arg;
Xaa_{25} is Ala or Val;
Xaa_{26} is Lys, Glu or Arg;
Xaa_{27} is Glu or Leu;
Xaa_{30} is Ala, Glu or Arg;
Xaa_{33} is Val or Lys;
Xaa_{34} is Lys, Glu, Asn or Arg;
Xaa_{35} is Gly or Aib;
Xaa_{36} is Arg, Gly or Lys;
Xaa_{37} is Gly, Ala, Glu, Pro, Lys, amide or is absent;
Xaa_{38} is Lys, Ser, amide or is absent.
Xaa_{39} is Ser, Lys, amide or is absent;
Xaa_{40} is Gly, amide or is absent;
Xaa_{41} is Ala, amide or is absent;
Xaa_{42} is Pro, amide or is absent;
Xaa_{43} is Pro, amide or is absent;
Xaa_{44} is Pro, amide or is absent;
Xaa_{45} is Ser, amide or is absent;
Xaa_{46} is amide or is absent ;
provided that if Xaa_{38}, Xaa_{39}, Xaa_{40}, Xaa_{41}, Xaa_{42}, Xaa_{43}, Xaa_{44}, Xaa_{45} or Xaa_{46} is absent then each amino acid residue downstream is also absent.

40. A compound according to claim 39, wherein said polypeptide is a GLP-1 peptide comprising the amino acid sequence of formula (V):

Xaa_7-Xaa_8-Glu-Gly-Thr-Phe-Thr-Ser-Asp-Val-Ser-Xaa_{18}-Tyr-Leu-Glu-Xaa_{22}-Xaa_{23}-Ala-Ala-Xaa_{26}-Glu-Phe-Ile-Xaa_{30}-Trp-Leu-Val-Xaa_{34}-Xaa_{35}-Xaa_{36}-Xaa_{37}-Xaa_{38}

Formula (V) (SEQ ID No: 3)

wherein

Xaa_7 is L-histidine, D-histidine, desamino-histidine, 2-amino-histidine, β-hydroxy-histidine, homohistidine, N^{α}-acetyl-histidine, α-fluoromethyl-histidine, α-methyl-histidine, 3-pyridylalanine, 2-pyridylalanine or 4-pyridylalanine;
Xaa_8 is Ala, Gly, Val, Leu, Ile, Lys, Aib, (1-aminocyclopropyl) carboxylic acid, (1-aminocyclobutyl) carboxylic acid, (1-aminocyclopentyl) carboxylic acid, (1-aminocyclohexyl) carboxylic acid, (1-aminocycloheptyl) carboxylic acid, or (1-aminocyclooctyl) carboxylic acid;
Xaa_{18} is Ser, Lys or Arg;
Xaa_{22} is Gly, Glu or Aib;
Xaa_{23} is Gln, Glu, Lys or Arg;
Xaa_{26} is Lys, Glu or Arg;
Xaa_{30} is Ala, Glu or Arg;
Xaa_{34} is Lys, Glu or Arg;
Xaa_{35} is Gly or Aib;
Xaa_{36} is Arg or Lys;
Xaa_{37} is Gly, Ala, Glu or Lys;
Xaa_{38} is Lys, amide or is absent.

41. A compound according to any one of claims 38-40, wherein said GLP-1 peptide is selected from GLP-1(7-35), GLP-1(7-36), GLP-1(7-36)-amide, GLP-1(7-37), GLP-1(7-38), GLP-1(7-39), GLP-1(7-40), GLP-1(7-41) or an analogue thereof.

42. A compound according to any one of claims 38-41, wherein said GLP-1 peptide comprises no more than fifteen amino acid residues which have been exchanged, added or deleted as compared to GLP-1(7-37) (SEQ ID No. 1), or no more than ten amino acid residues which have been exchanged, added or deleted as compared to GLP-1(7-37) (SEQ ID No. 1).

43. A compound according to claim 42, wherein said GLP-1 peptide comprises no more than six amino acid residues which have been exchanged, added or deleted as compared to GLP-1(7-37) (SEQ ID No. 1).

44. A compound according to any one of claims 42-43, wherein said GLP-1 peptide comprises no more than 4 amino acid residues which are not encoded by the genetic code.

45. A compound according to claim 38, wherein said GLP-1 peptide is a DPPIV protected GLP-1 peptide.

46. A compound according to claim 38, wherein said compound is DPPIV stabilised.

47. A compound according to any one of claims 38-46, wherein said GLP-1 peptide comprises an Aib residue in position 8.

48. A compound according to any one of claims 38-47, wherein the amino acid residue in position 7 of said GLP-1 peptide is selected from the group consisting of D-histidine, desamino-histidine, 2-amino-histidine, β-hydroxy-histidine, homohistidine, N^{α}-acetyl-histidine , α-fluoromethyl-histidine, α-methyl-histidine, 3-pyridylalanine, 2-pyridylalanine and 4-pyridylalanine.

49. A compound according to any one of claims 38-48, wherein said GLP-1 peptide is selected from the group consisting of Arg^{34}GLP-1(7-37), $Lys^{38}Arg^{26,34}$GLP-1(7-38), $Lys^{38}Arg^{26,34}$GLP-1(7-38)-OH, $Lys^{36}Arg^{26,34}$GLP-1(7-36), $Aib^{8,22,35}$GLP-1(7-37), $Aib^{8,35}$GLP-1(7-37), $Aib^{8,22}$GLP-1(7-37), $Aib^{8,22,35}Arg^{26,34}Lys^{38}$GLP-1(7-38), $Aib^{8,35}Arg^{26,34}Lys^{38}$GLP-1(7-38), $Aib^{8,22}Arg^{26,34}Lys^{38}$GLP-1(7-38), $Aib^{8,22,35}Arg^{26,34}Lys^{38}$GLP-1(7-38), $Aib^{8,35}Arg^{26,34}Lys^{38}$GLP-1(7-38), $Aib^{8,22,35}Arg^{26}Lys^{38}$GLP-1(7-38), $Aib^{8,35}Arg^{26}Lys^{38}$GLP-1(7-38), $Aib^{8,22}Arg^{26}Lys^{38}$GLP-1(7-38), $Aib^{8,22,35}Arg^{34}Lys^{38}$GLP-1(7-38), $Aib^{8,35}Arg^{34}Lys^{38}$GLP-1(7-38), $Aib^{8,22}Arg^{34}Lys^{38}$GLP-1(7-38), $Aib^{8,22,35}Ala^{37}Lys^{38}$GLP-1(7-38), $Aib^{8,35}Ala^{37}Lys^{38}$GLP-1(7-38), $Aib^{8,22}Ala^{37}Lys^{38}$GLP-1(7-38), $Aib^{8,22,35}Lys^{37}$GLP-1(7-37), $Aib^{8,35}Lys^{37}$GLP-1(7-37) and $Aib^{8,22}Lys^{37}$GLP-1(7-38).

50. A compound according to any one of claims 38-49, wherein said GLP-1 peptide is attached to said hydrophilic spacer via the amino acid residue in position 23, 26, 34, 36 or 38 relative to the amino acid sequence SEQ ID No:1.

51. A compound according to any one of claims 38-41, wherein said GLP-1 peptide is exendin-4.

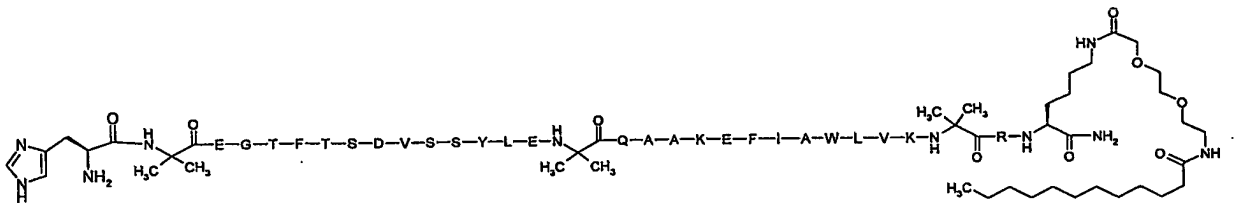
52. A compound according to any one of claims 38-41, wherein said GLP-1 peptide is ZP-10, i.e. HGEGTFTSDLSKQMEEEAVRLFIEWLKNGGPSSGAPPSKKKKKK-amide.

53. A compound according to any one of claims 38-52, wherein one albumin binding residue via said hydrophilic spacer is attached to the C-terminal amino acid residue of said GLP-1 peptide.

54. A compound according to claim 53, wherein a second albumin binding residue is attached to an amino acid residue which is not the C-terminal amino acid residue.

55. A compound according to any one of the previous claims, wherein said compound is selected from the group consisting of

$N^{\varepsilon 37}$-(2-(2-(2-(dodecylamino)ethoxy)ethoxy)acetyl)-[$Aib^{8,22,35}$$Lys^{37}$]GLP-1(7-37)amide



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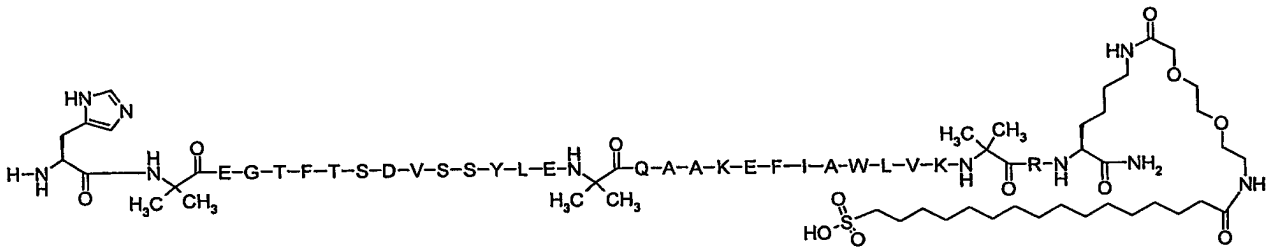
$N^{\varepsilon 37}$-(2-(2-(2-(17-sulphohexadecanoylamino)ethoxy)ethoxy)acetyl)-[$Aib^{8,22,35}$,Lys^{37}] GLP-1 (7-37)amide



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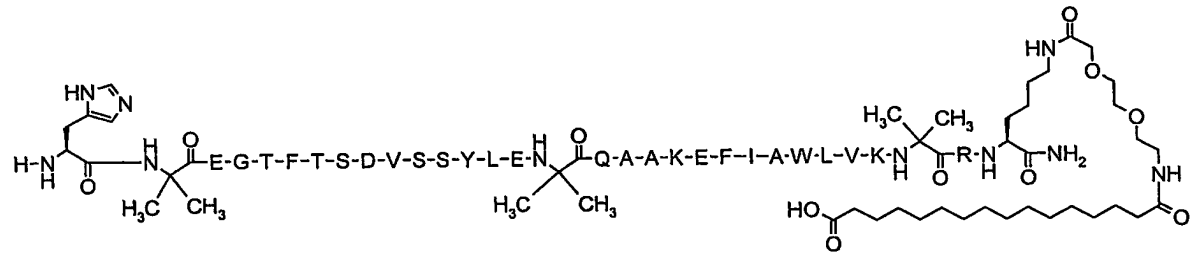
$N^{\varepsilon 37}$-{2-[2-(2-(15-carboxypentadecanoylamino)ethoxy)ethoxy]acetyl}-[$Aib^{8,22,35}$,Lys^{37}] GLP-1(7-37)amide



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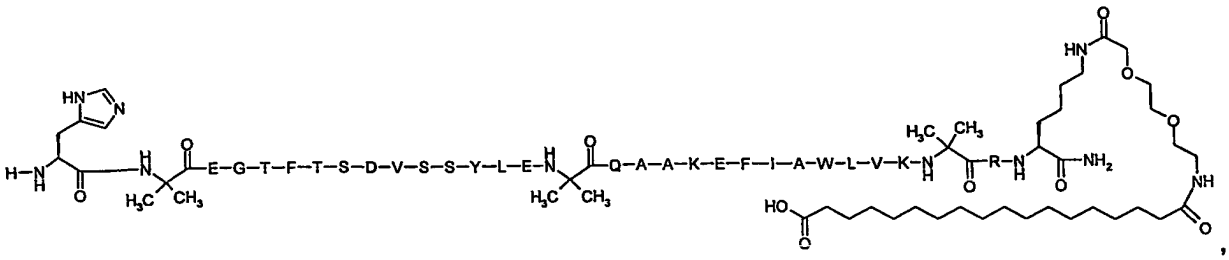
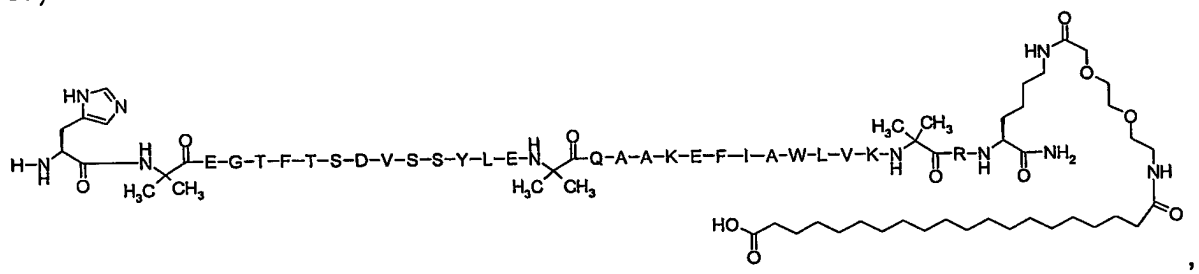
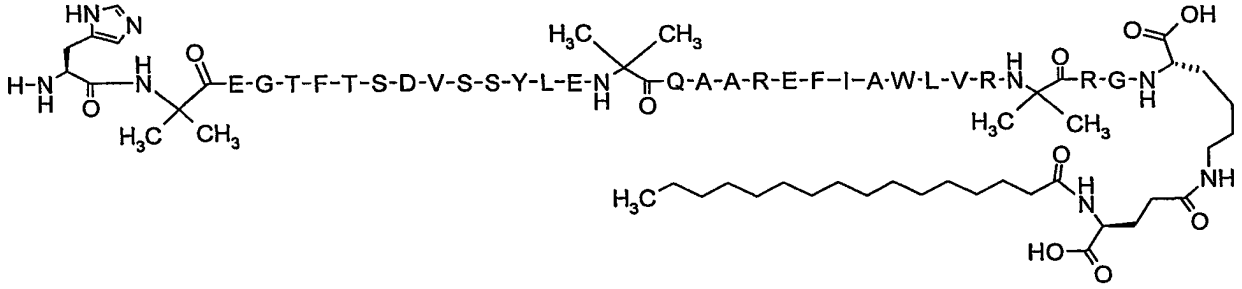
$N^{\varepsilon 37}$-(2-(2-(2-(17-carboxyheptadecanoylamino)ethoxy)ethoxy)acetyl)[$Aib^{8,22,35}$,Lys^{37}]GLP-1(7-37)amide



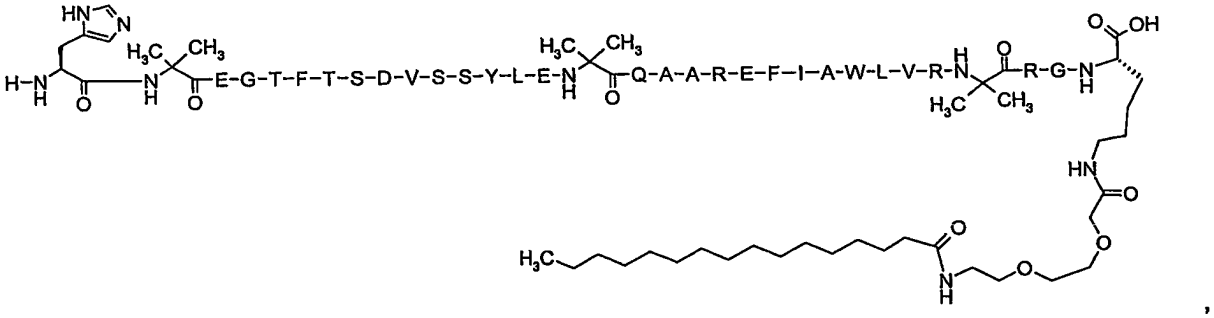
$N^{\varepsilon 37}$-(2-(2-(2-(19-carboxynonadecanoylamino)ethoxy)ethoxy)acetyl)[$Aib^{8,22,35}$,Lys^{37}]GLP-1(7-37)amide



[$Aib^{8,22,35}$,$Arg^{26,34}$]GLP-1-(7-37)Lys(4-(Hexadecanoylamino)-4(S)-carboxybutyryl)-OH

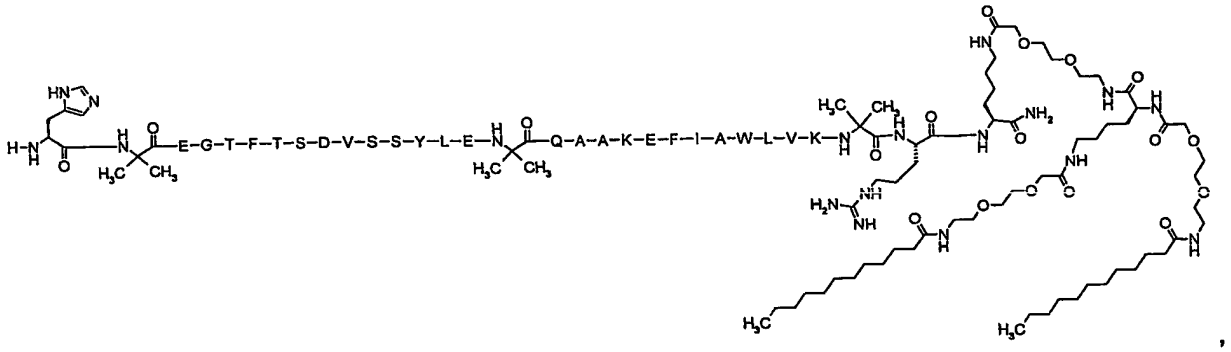


[$Aib^{8,22,35}$,$Arg^{26,34}$]GLP-1-(7-37)Lys(2-(2-(2-(hexadecanoylamino)ethoxy)ethoxy)acetyl)-OH



$N^{\varepsilon 37}$-(2-[2-(2,6-(S)-Bis-{2-[2-(2-(dodecanoylamino)ethoxy)ethoxy]acetylamino}hexanoylamino)ethoxy]ethoxy})

acetyl-[Aib^{8,22,35}]GLP-1(7-37)amide



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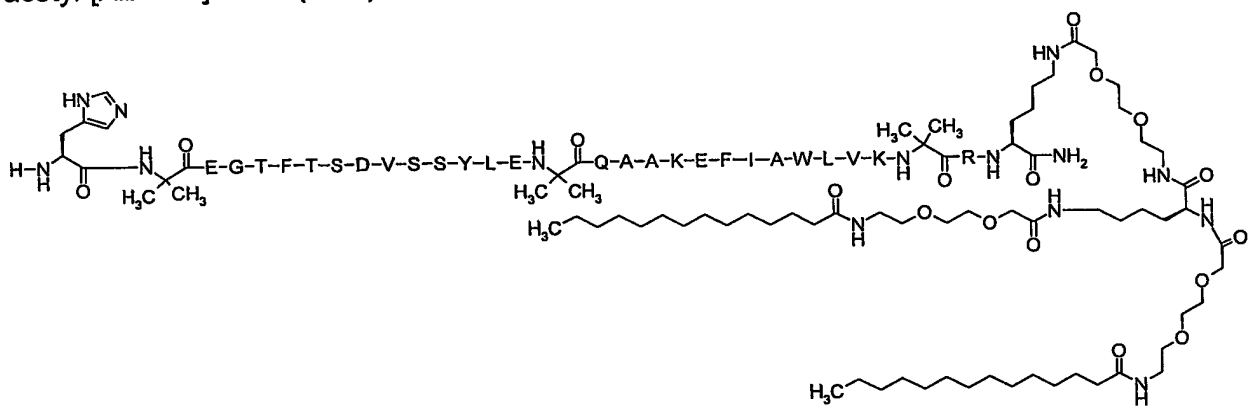
$N^{\varepsilon 37}$-(2-[2-(2,6-(S)-Bis-{2-[2-(2-(tetradecanoylamino)ethoxy)ethoxy]acetylamino}hexanoylamino)ethoxy]ethoxy})acetyl-[Aib^{8,22,35}]GLP-1(7-37)amide



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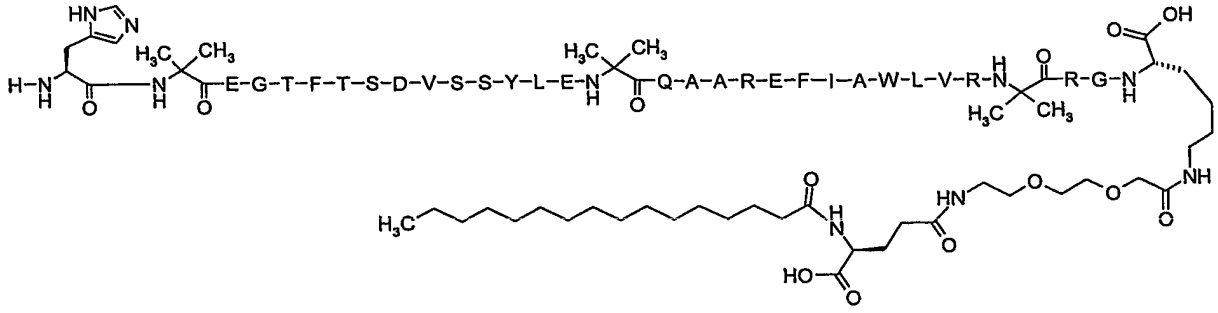
[Aib^{8,22,35},Arg^{26,34}]GLP-1-(7-37)Lys(2-(2-(2-(4-(Hexadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetyl)-OH



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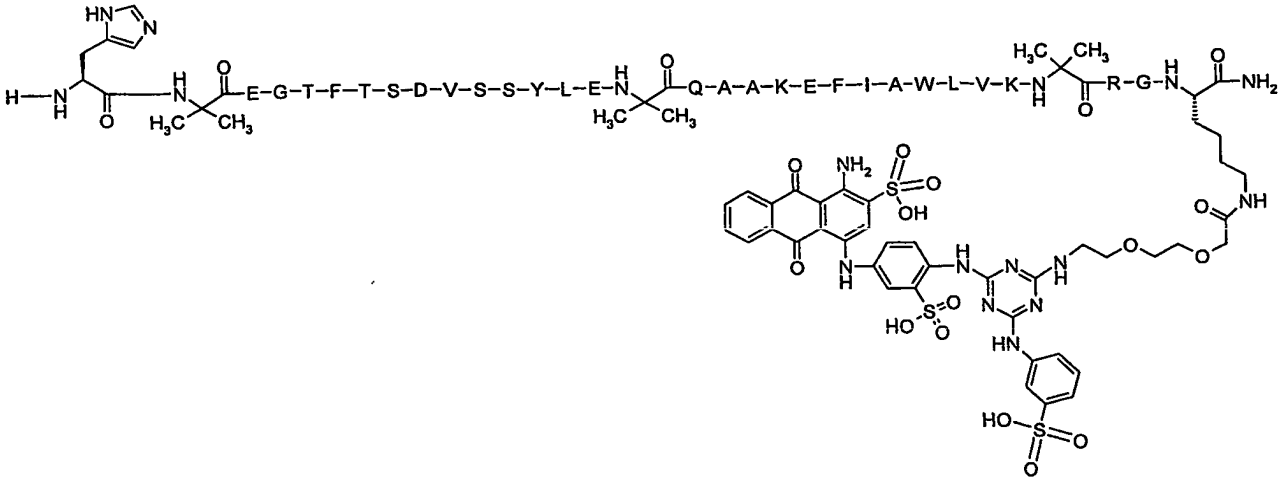
[Aib^{8,22,35}]GLP-1(7-37)Lys((2-{2-[4-[4-(4-Amino-9,10-dioxo-3-sulfo-9,10-dihydro-anthracen-1-ylamino)-2-sulfo-phenylamino]-6-(2-sulfo-phenylamino)-[1,3,5]triazin-2-ylamino]-ethoxy}-ethoxy)-acetyl))amide



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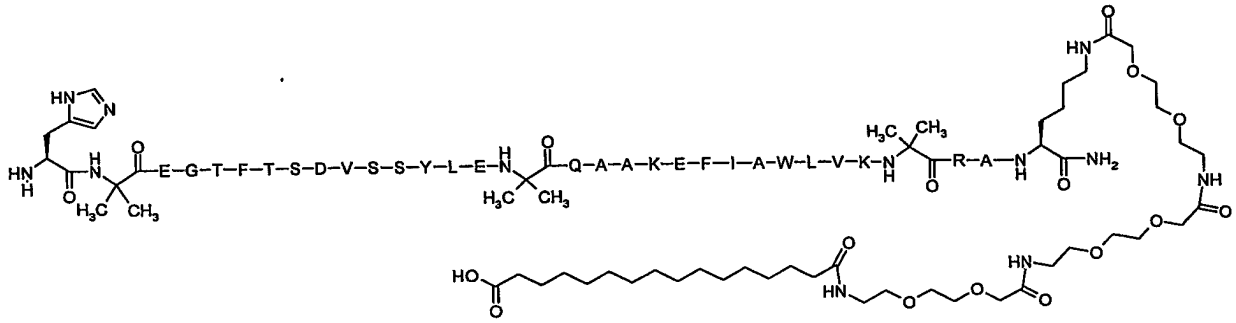
[Aib^{8,22,35}]GLP-1(7-37)Lys(({2-[2-(2-{2-[2-(2-{2-[2-(15-carboxypentadecanoylamino)-ethoxy]ethoxy}acetylamino)ethoxy]ethoxy}acetyl amino)ethoxy]ethoxy}acetyl))amide



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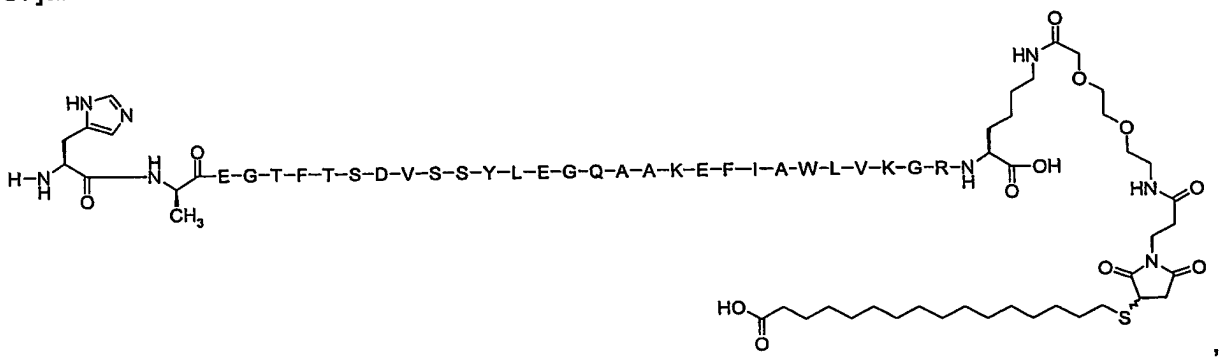
N$^{\varepsilon 37}$-([2-(2-{3-[2,5-dioxo-3-(15-carboxypentadecylsulfanyl)-pyrrolidin-1-yl]-propionylamino}ethoxy)ethoxy)acetyl]-[D-Ala^{8},Lys^{37}]-GLP-1-[7-37]amide



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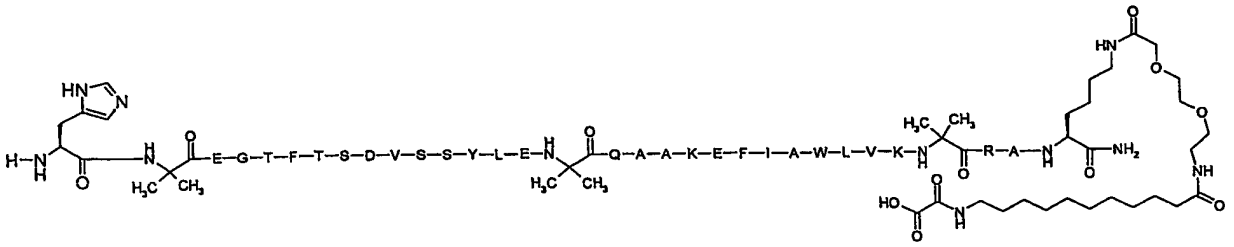
[Aib^{8,22,35}Ala^{37}]GLP-1(7-37)Lys((2-(2-(2-(11-(oxalylamino)undecanoylamino)ethoxy)ethoxy)acetyl-)))amide



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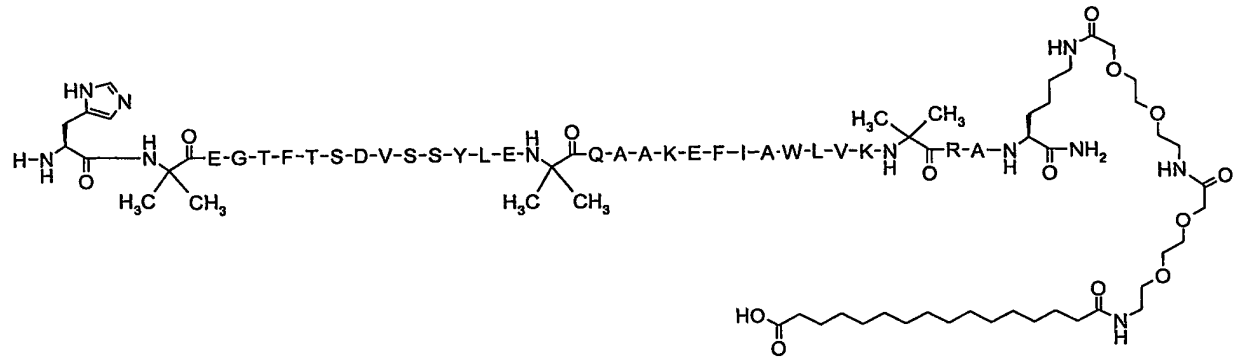
[Aib^{8,22,35},Ala^{37}]-GLP-1(7-37)Lys({2-[2-(2-{2-[2-(2-(15-carboxy-pentadecanoylamino)-ethoxy]ethoxy}acetylamino)ethoxy]ethoxy}acetyl)amide



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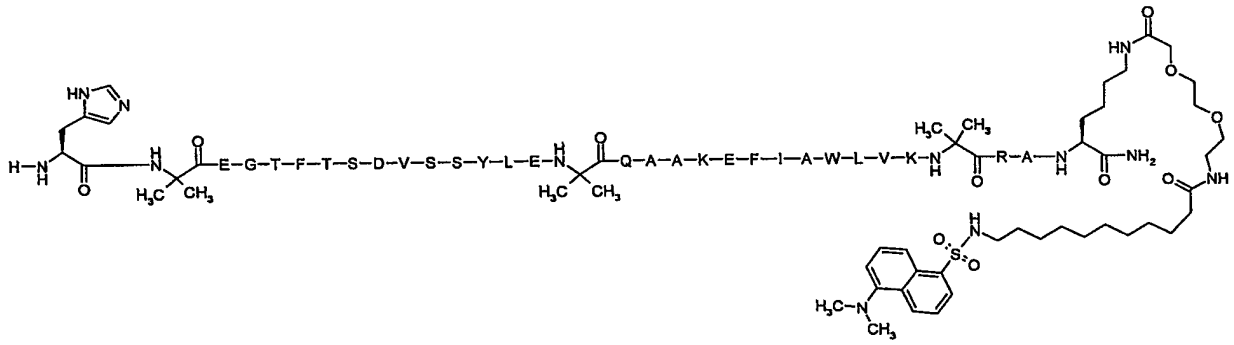
[Aib^{8,22,35},Ala^{37}]-GLP-1(7-37)Lys((2-{2-[11-(5-Dimethylaminonaphthalene-1-sulfonylamino)undecanoylamino]ethoxy}ethoxy)acetyl)amide



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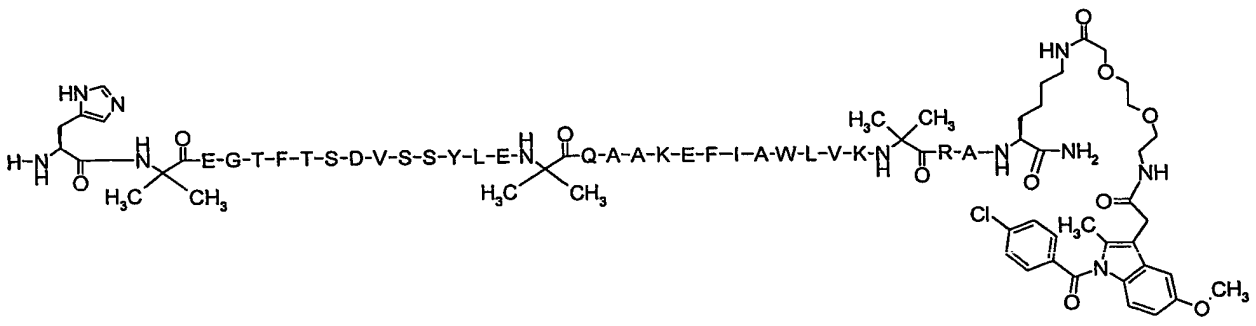
[Aib^{8,22,35},Ala^{37}]-GLP-1(7-37)Lys(([2-(2-{2-[1-(4-Chlorobenzoyl)-5-methoxy-2-methyl-1H-indol-3-yl]acetylamino}ethoxy)ethoxy]acetyl))amide



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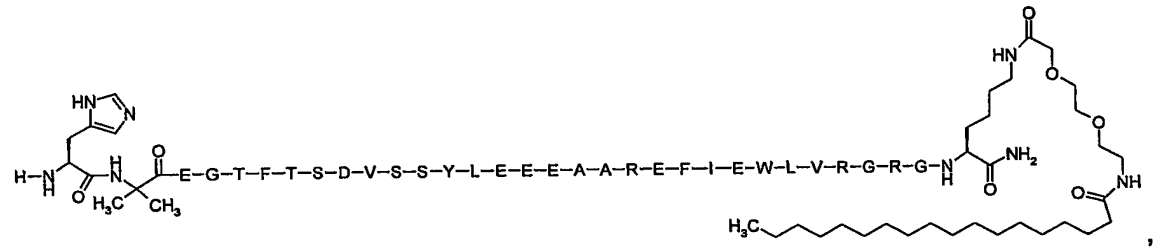
[Aib^{8},Arg^{26,34},Glu^{22,23,30}]GLP-1 H(7-37)Lys(2-(2-(2-(octadecanoylamino)ethoxy)ethoxy)acetyl)amide



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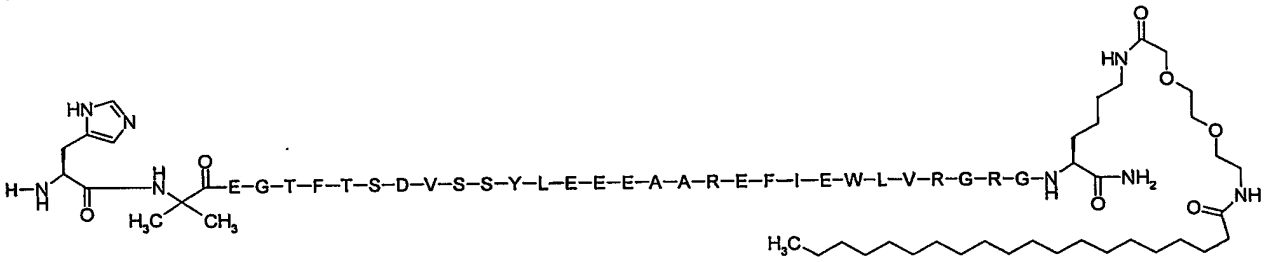
[Aib^{8},Arg^{26,34},Glu^{22,23,30}]GLP-1(7-37)Lys(2-(2-(2-(eicosanoylamino)ethoxy)ethoxy)acetyl)amide



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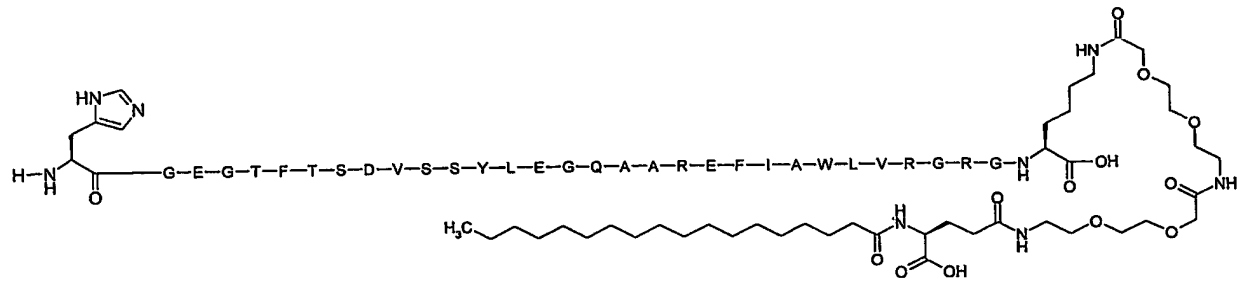
[Gly^{8},Arg^{26,34}] GLP-1 H-(7-37)Lys(2-(2-(2-(2-(2-(2-(4-(octadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetyl)ethoxy)ethoxy)acetyl)-OH



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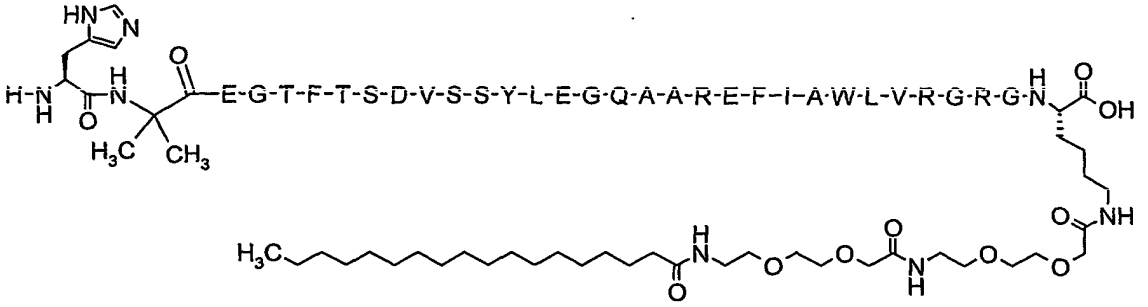
[Aib^{8},Arg^{26,34}]GLP-1 (7-37)Lys{2-(2-(2-(2-[2-(2-(octadecanoylamino)ethoxy)ethoxy]acetyl)ethoxy)ethoxy)acetyl)}-OH



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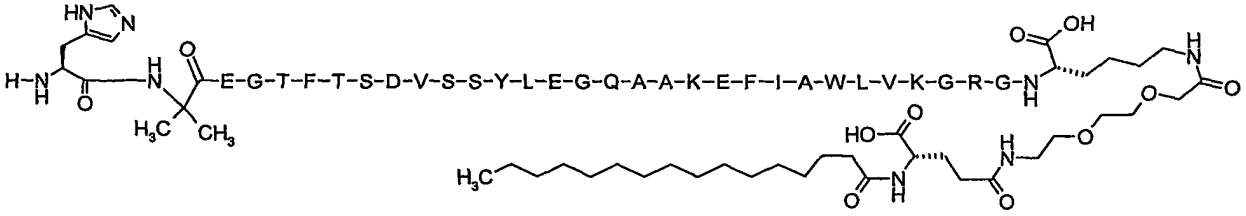
[Aib^{8}] -GLP-1-(7-37)Lys (2-(2-(2-(4-(Hexadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetyl)-OH



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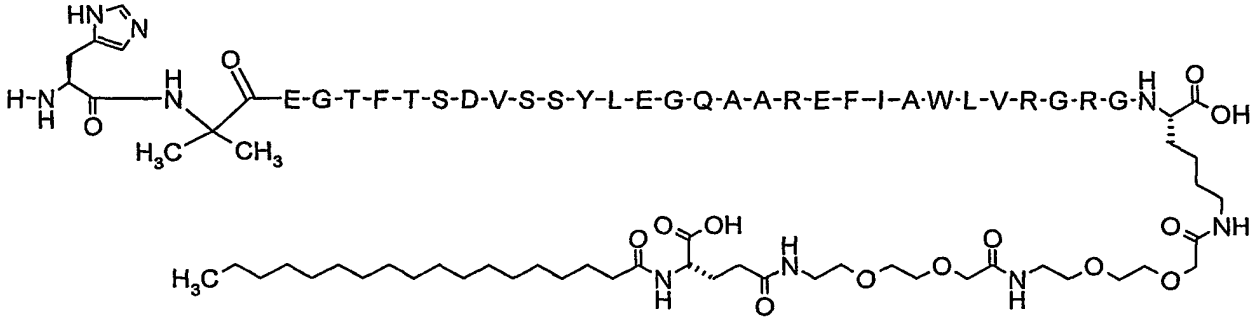
[Aib^{8},Arg^{26,34}] GLP-1(7-37) Lys{2-(2-(2-(2-[2-(2-(4-(octadecanoylamino)-4-carboxybutyrylamino)ethoxy)ethoxy]acetyl)ethoxy)ethoxy)acetyl)}-OH



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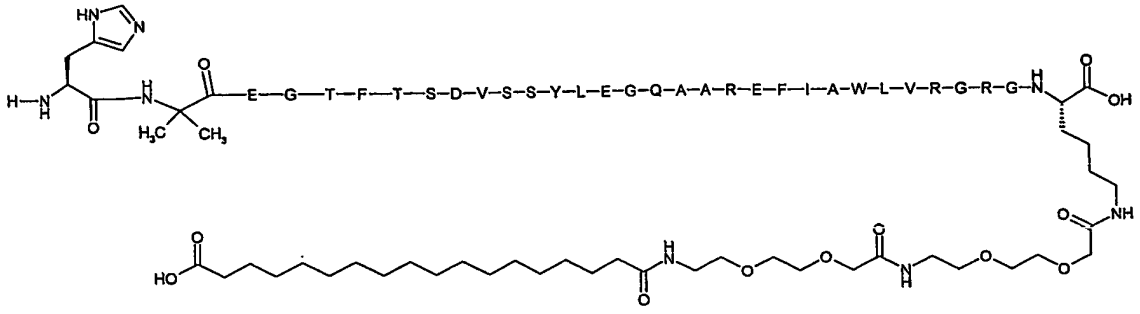
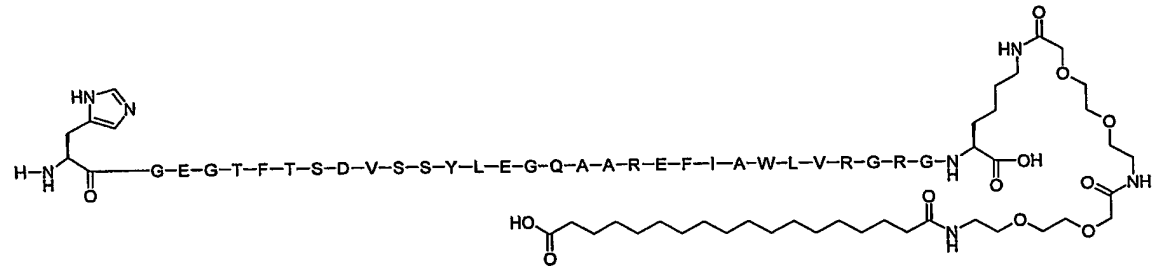
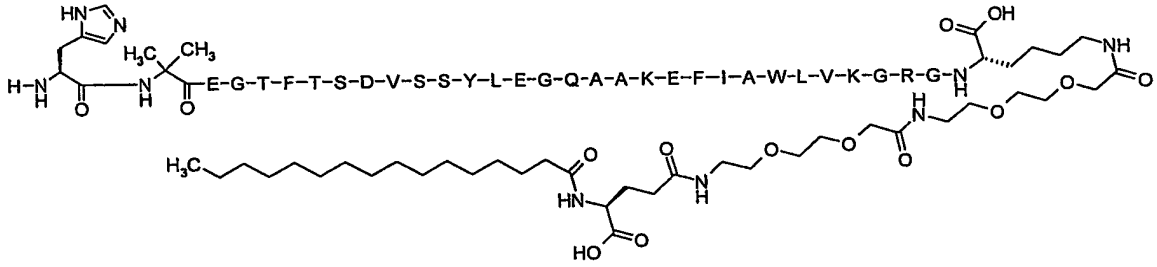
[Aib^{8},Arg^{26,34}] GLP-1 (7-37)Lys{2-(2-(2-(2-[2-(2-(17-carboxyheptanoylamino)ethoxy)ethoxy]acetylamino)ethoxy)ethoxy)acetyl)}-OH



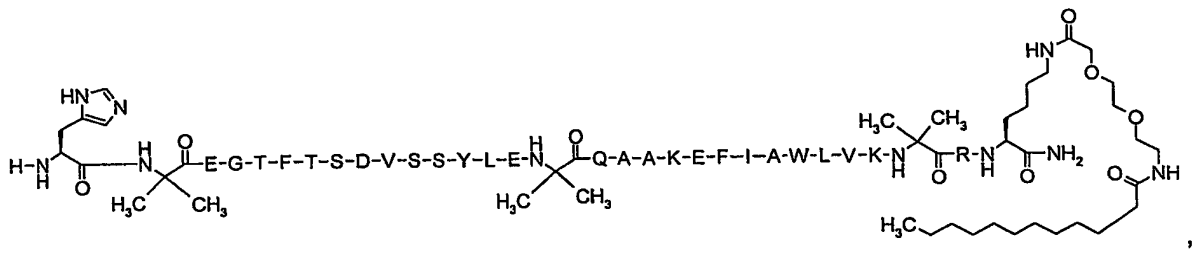
[Gly^{8}, Arg^{26,34}] GLP1-(7-37) Lys{2-(2-(2-(2-[2-(2-(17-carboxyheptadecanoylamino)ethoxy)ethoxy]acetyl)ethoxy)ethoxy)acetyl)}-OH



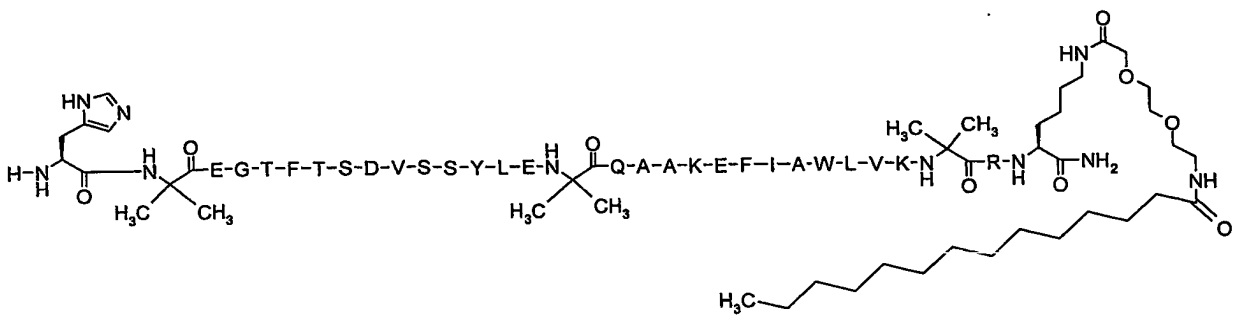
[Aib^{8}]GLP-1-(7-37)Lys(2-(2-(2-(2-(2-(2-(4-(Hexadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetylamino) ethoxy)ethoxy)acetyl)-OH



N$^{\varepsilon 37}$-(2-(2-(2-(dodecanoylamino)ethoxy)ethoxy)acetyl)-[Aib^{8,22,35}Lys^{37}] GLP-1 H(7-37)-amide



N$^{\varepsilon 37}$-(2-(2-(2-(tetradecanoylamino)ethoxy)ethoxy)acetyl)-[Aib^{8,22,35}Lys^{37}] GLP-1 H(7-37)-amide



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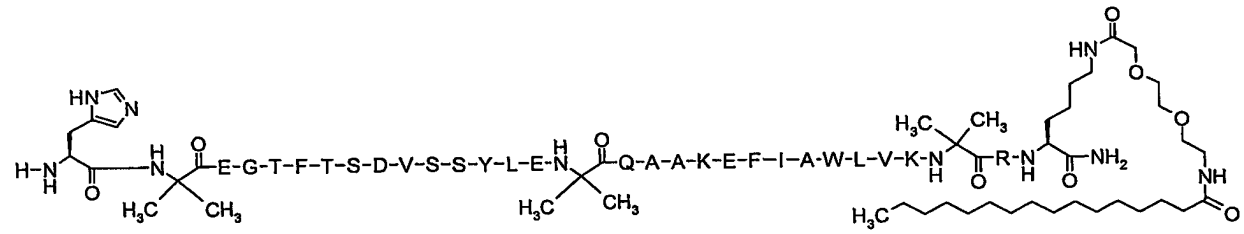
$N^{\varepsilon 37}$-(2-(2-(2-(hexadecanoylamino)ethoxy)ethoxy)acetyl)-[$Aib^{8,22,35}Lys^{37}$] GLP-1 (7-37)-amide



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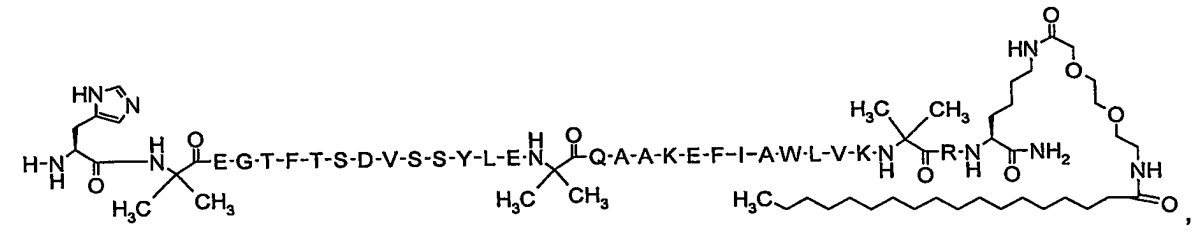
$N^{\varepsilon 37}$-(2-(2-(2-(octadecanoylamino)ethoxy)ethoxy)acetyl)-[$Aib^{8,22,35}Lys^{37}$] GLP-1 (7-37)-amide



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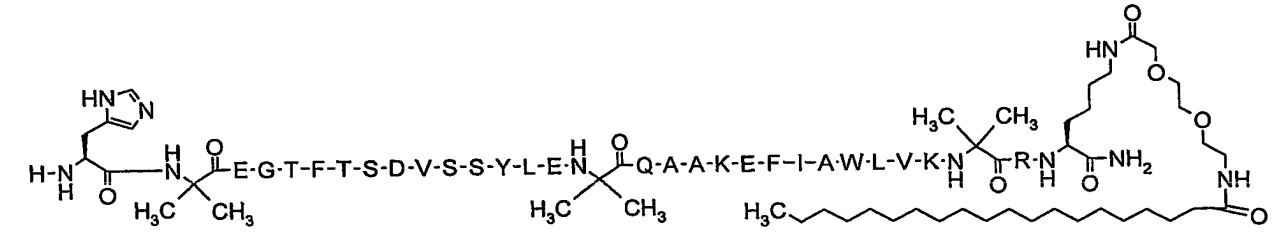
$N^{\varepsilon 37}$-(2-(2-(2-(eicosanoylamino)ethoxy)ethoxy)acetyl)-[$Aib^{8,22,35}Lys^{37}$] GLP-1(7-37)-amide



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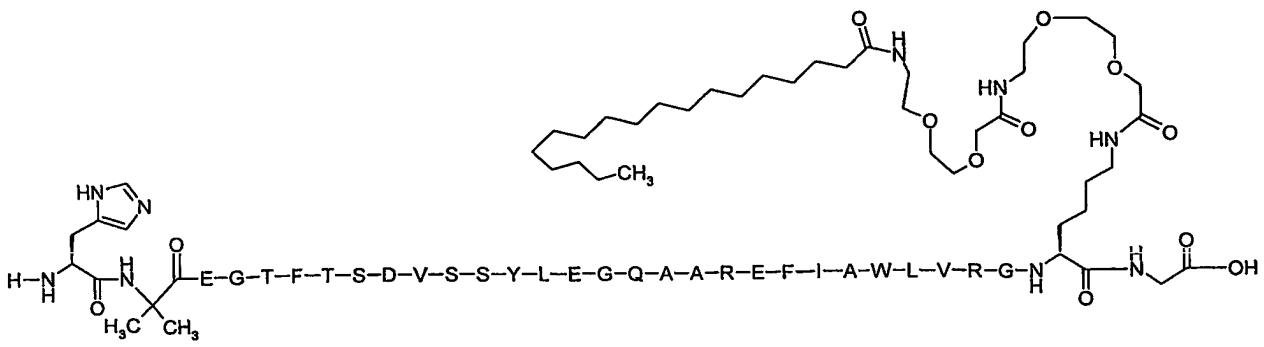
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(octadecanoylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl))-[Aib^{8},$Arg^{26,34}$,Lys^{36}]GLP-1-(7-37)-OH



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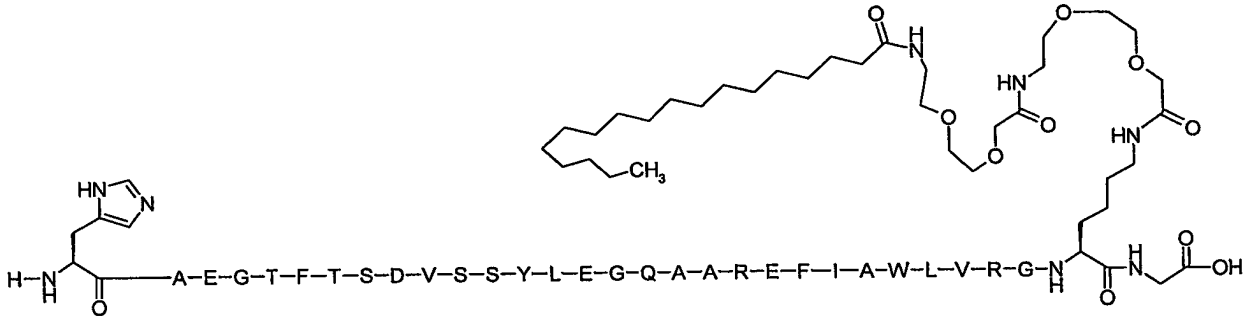
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(octadecanoylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl))[$Arg^{26,34}$,Lys^{36}]GLP-1(7-37)-OH



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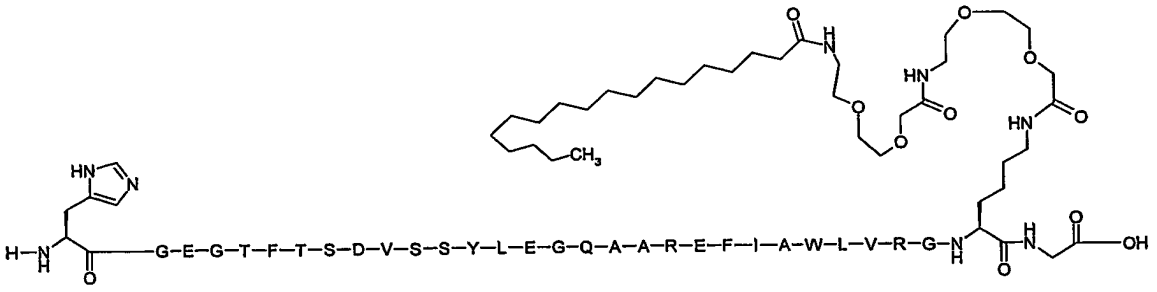
$N^{\varepsilon 36}$-{2-(2-(2-(2-[2-(2-(octadecanoylamino)ethoxy)ethoxy]acetylamino)ethoxy)ethoxy)acetyl)}-[Gly^{8},$Arg^{26,34}$,Lys^{36}]GLP-1-(7-37)-OH



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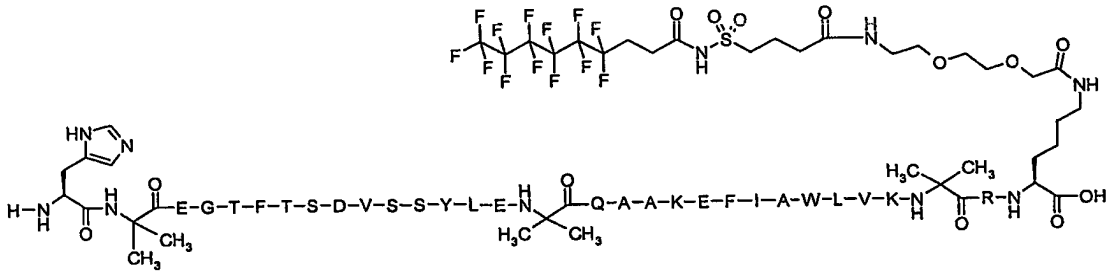
$N^{\varepsilon 37}$-(2-(2-(2-(4-4(4,4,5,5,6,6,7,7,8,8,9,9,9-tridecafluorononanoylsulfamoyl-butyrylamino)ethoxy)ethoxy)acetyl))[$Aib^{8,22,35}$,Lys^{37}] GLP-1-(7-37)-OH



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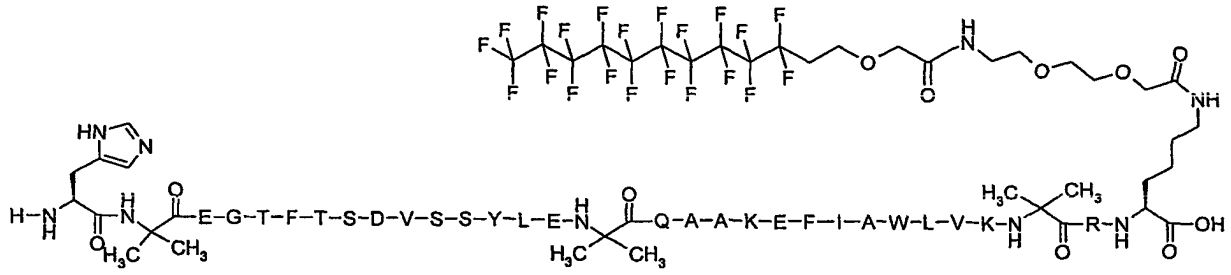
$N^{\varepsilon 37}$-(2-(2-(2-(3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,11,11,12,12,12-Heneicosafluoro-dodecyloxyacetylamino)ethoxy) ethoxy)acetyl)[$Aib^{8,22,35}$,Lys^{37}]GLP-1-(7-37)-OH



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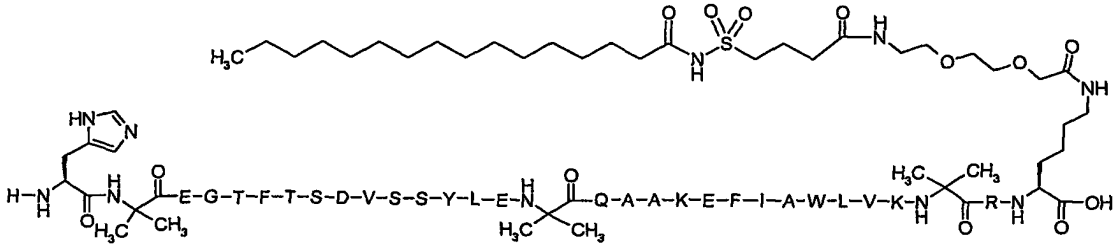
$N^{\varepsilon 37}$-(2-(2-(2-(4-(hexadecanoylsulfamoyl)butyrylamino)ethoxy)ethoxy)acetyl)[$Aib^{8,22,35}$,Lys^{37}] GLP-1-(7-37)-OH



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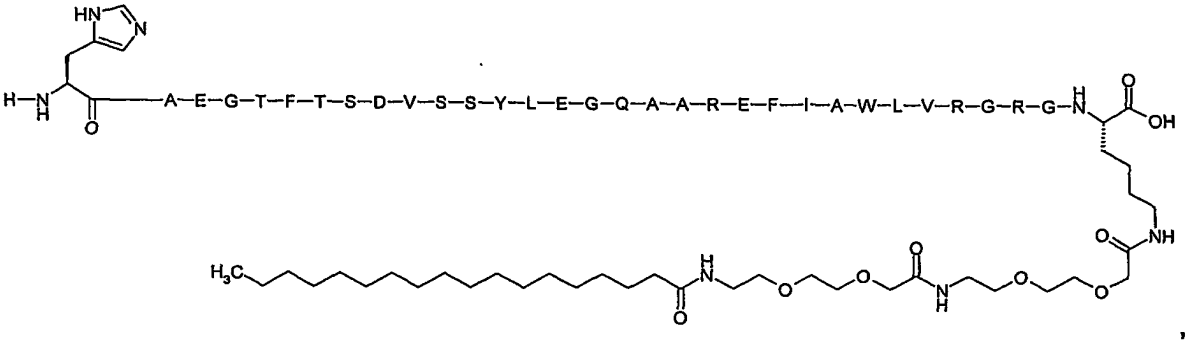
[$Arg^{26,34}$]GLP-1(7-37)Lys({2-(2-(2-(2-[2-(2-(octadecanoylamino)ethoxy)ethoxy]acetylamino)ethoxy)ethoxy)acetyl)})-OH



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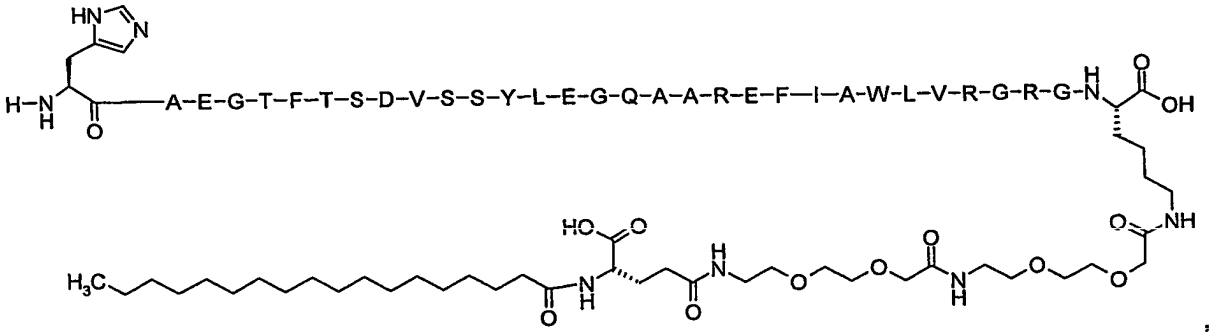
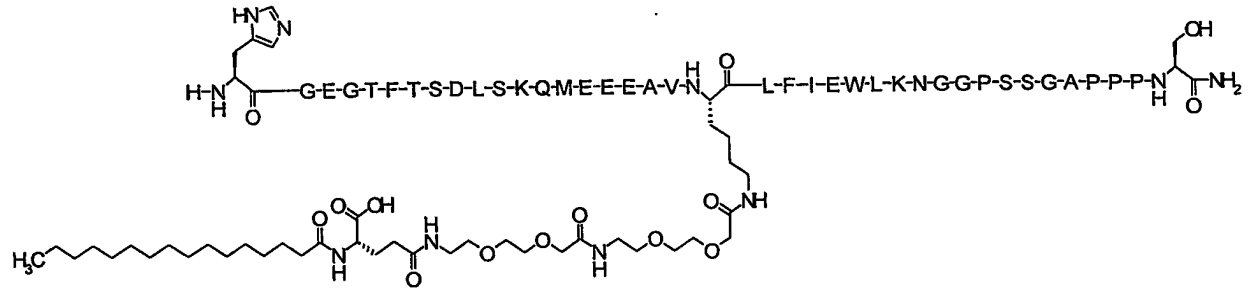
[$Arg^{26,34}$] GLP-1(7-37)Lys{2-(2-(2-(2-[2-(2-(4-(octadecanoylamino)-4-carboxybutyrylamino)ethoxy)ethoxy]acetylamino)ethoxy)ethoxy)acetyl)}-OH



$N^{\varepsilon 20}$-{2-(2-(2-(2-[2-(2-(4-(hexadecanoylamino)-4-carboxybutyrylamino)ethoxy)ethoxy]acetylamino)ethoxy)ethoxy)acetyl)}-exendin(1-39)



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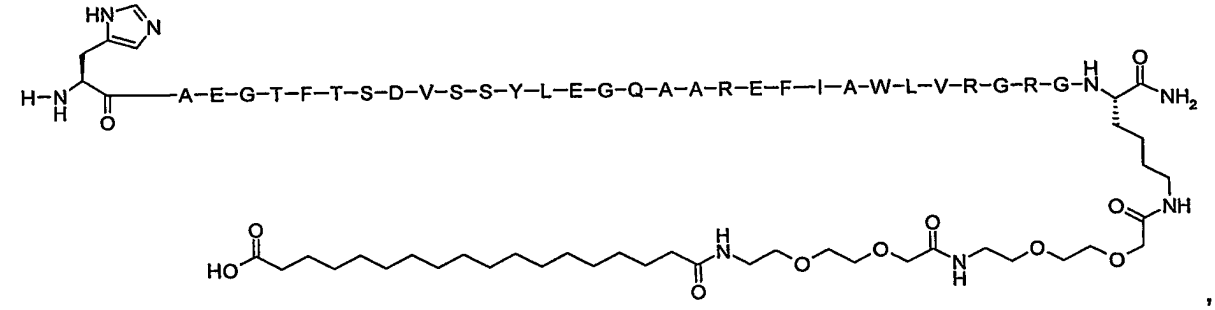
[Ala^{8}, Arg^{26,34}]GLP-1(7-37)Lys((2-[2-((2-oxalylamino-3-carboxy-2-4,5,6,7-tetrahydro-benzo[b]thiophen-6-yl-acetylamino))ethoxy]ethoxyacetyl) amide



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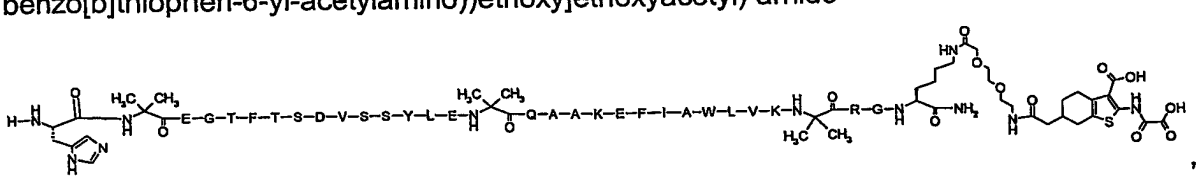
[Aib^{8,22,35}]GLP-1(7-37)Lys((2-[2-((2-oxalylamino-3-carboxy-2-4,5,6,7-tetrahydro-benzo[b]thiophen-6-yl-acetylamino))ethoxy]ethoxyacetyl) amide



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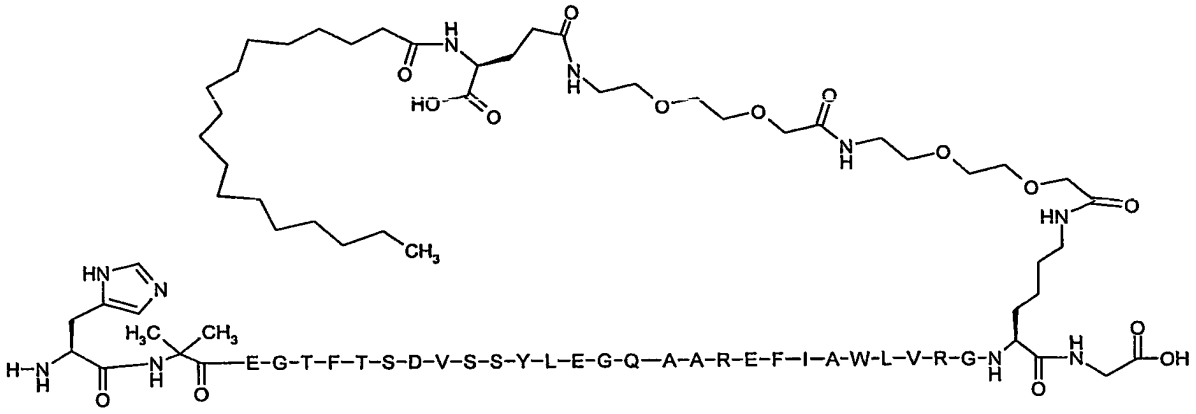
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(4-(octadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl)-[Aib^{8},$Arg^{26,34}$,Lys^{36}]GLP-1-(7-37)-OH



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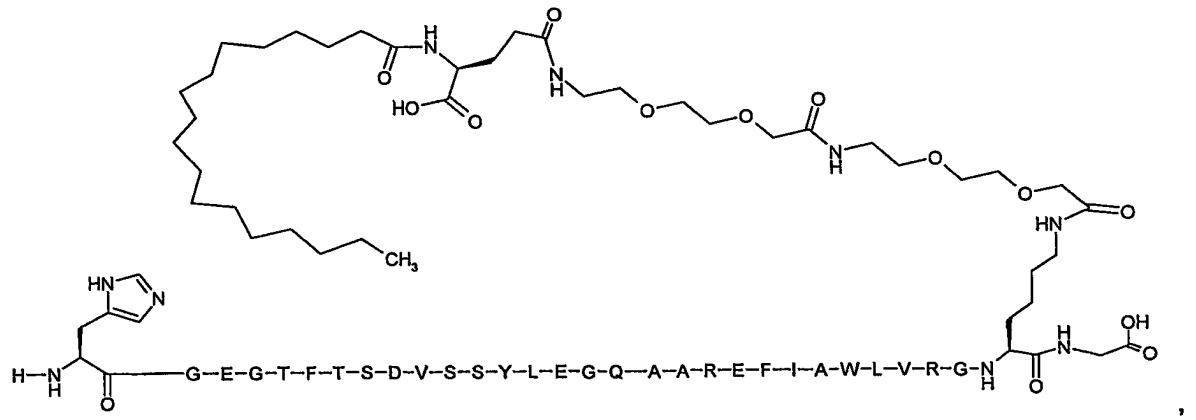
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(4-(octadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl)-[Gly^{8},$Arg^{26,34}$,Lys^{36}]GLP-1-(7-37)-OH



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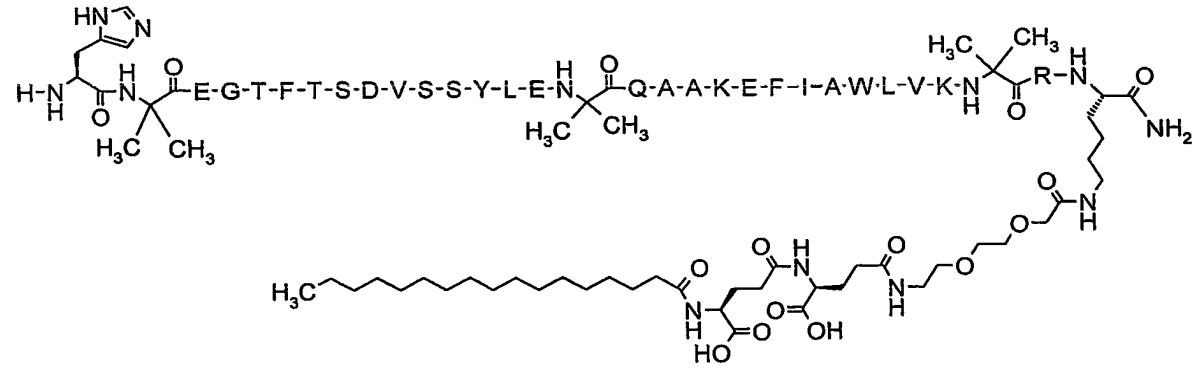
$N^{\varepsilon 37}$-2-(2-(2-(4-(4-(Heptadecanoylamino)-4-(S)-carboxybutyrylamino)-4-(S)-carboxybutyrylamino)ethoxy)ethoxy) acetyl-[$Aib^{8,22,35}$,Lys^{37}]GLP-1-(7-37)-NH_2



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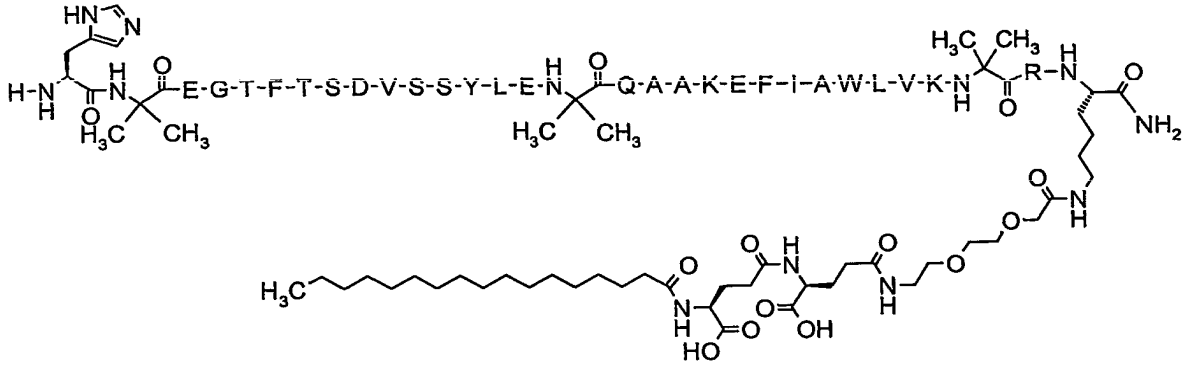
$N^{\varepsilon 37}$-2-(2-[2-(2-[2-(4-[4-(Heptadecanoylamino)-4-(S) carboxybutyrylamino]-4-(S)-carboxybutyrylamino)ethoxy] ethoxy)acetylamino)ethoxy]ethoxy)acetyl-[$Aib^{8,22,35}$,Lys^{37}]GLP-1-(7-37)-NH_2



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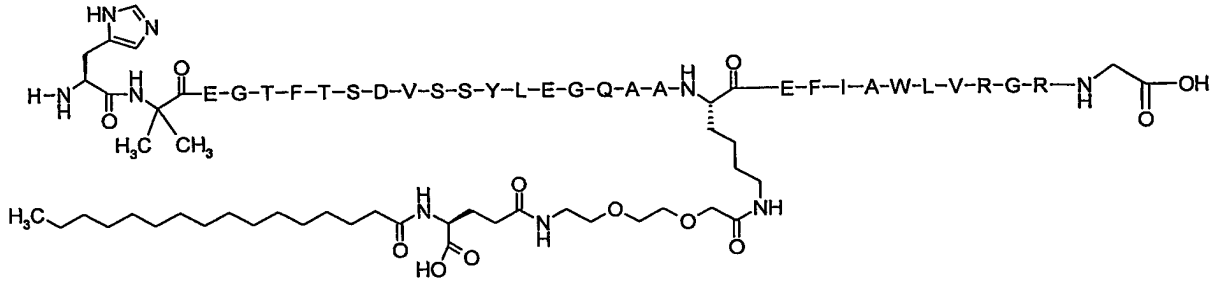
$N^{\varepsilon 26}$-(2-(2-(2-(4-(Hexadecanoylamino)-4(S)-carboxybutyrylamino) ethoxy)ethoxy)acetyl)-[Aib^{8},Arg^{34}]GLP-1-(7-37)- -OH



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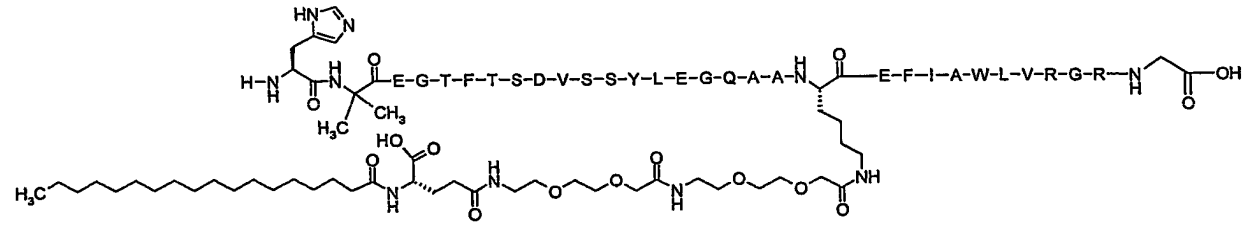
$N^{\varepsilon 26}$-2-(2-2-(2-(2-(2-(4-(Octadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl-[Aib^{8}, Arg^{34}]GLP-1-(7-37)-OH



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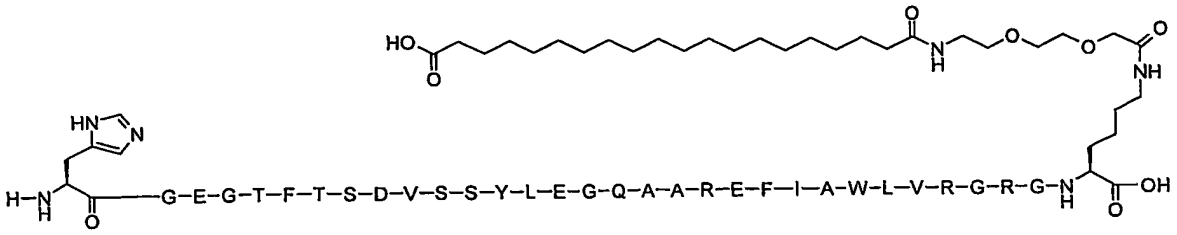
[Gly^{8},$Arg^{26,34}$]GLP-1(7-37)Lys(2-(2-(19-(carboxy)nonadecanoylamino)ethoxy)ethoxy)acetyl)-OH



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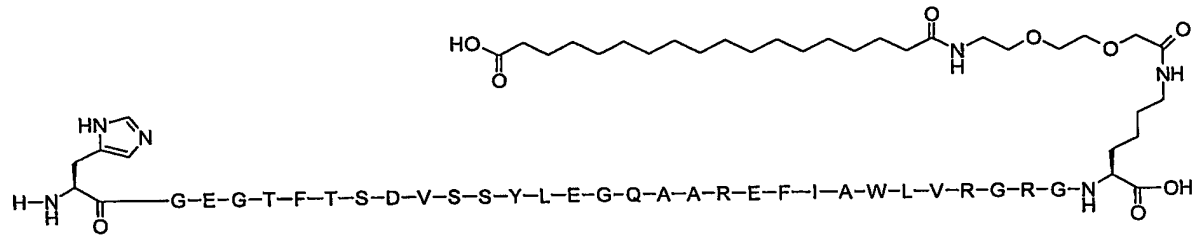
[Gly^{8},Arg^{26,34}]GLP-1(7-37)Lys((2-(2-(17-(carboxy)heptadecanoylamino)ethoxy)ethoxy)acetyl))-OH



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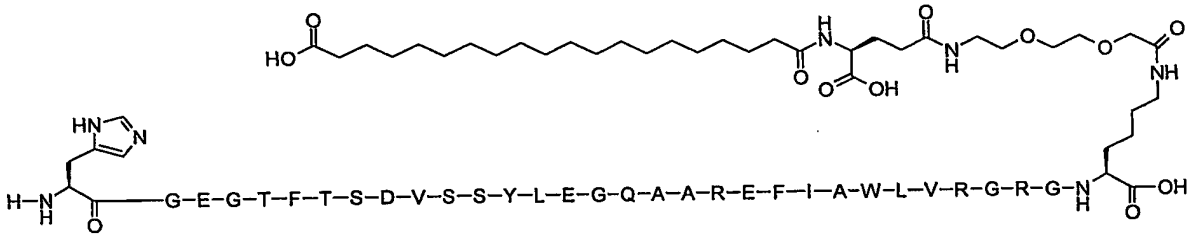
[Gly^{8},Arg^{26,34}]GLP-1(7-37)Lys(2-(2-(2-(4-(19-(carboxy)nonadecanoylamino)-4-carboxybutyrylamino)ethoxy)ethoxy)acetyl)-OH



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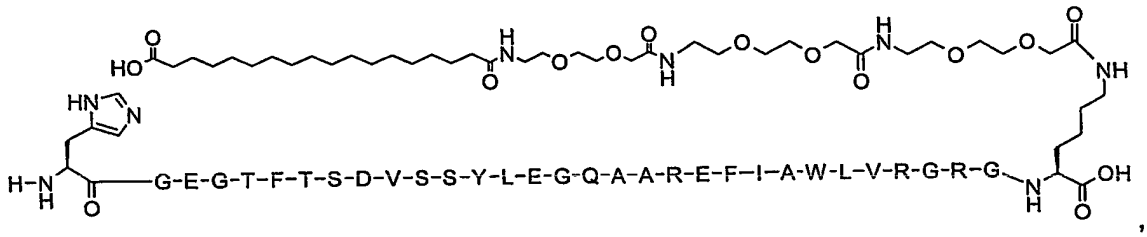
[Gly^{8},Arg^{26,34}]GLP-1(7-37)Lys((2-(2-(2-(2-(2-(2-(2-(2-(2-(hexadecanoylamino)ethoxy)ethoxy)acetyl)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)-acetyl)-OH



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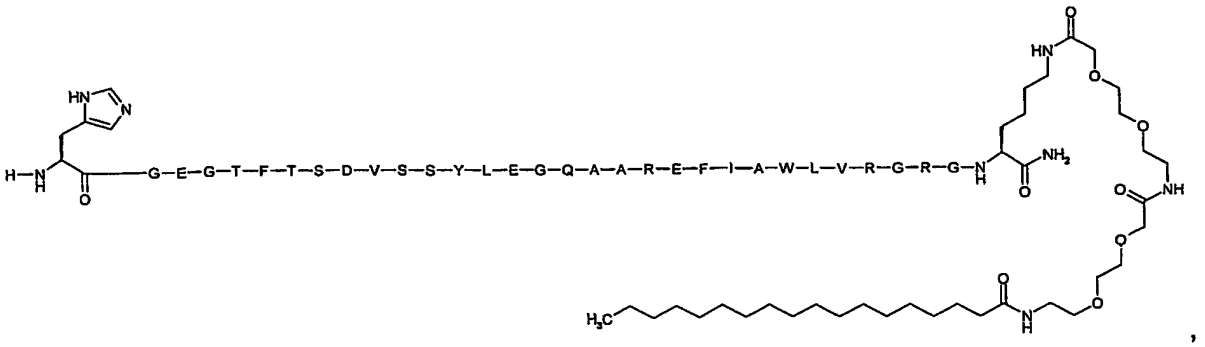
[Gly^{8}, Arg^{26,34}]GLP-1 (7-37)Lys (2-(2-(2-(2-(2-(2-(octadecanoylamino)ethoxy)ethoxy)-acetylamino)ethoxy)ethoxy)acetyl) NH_2



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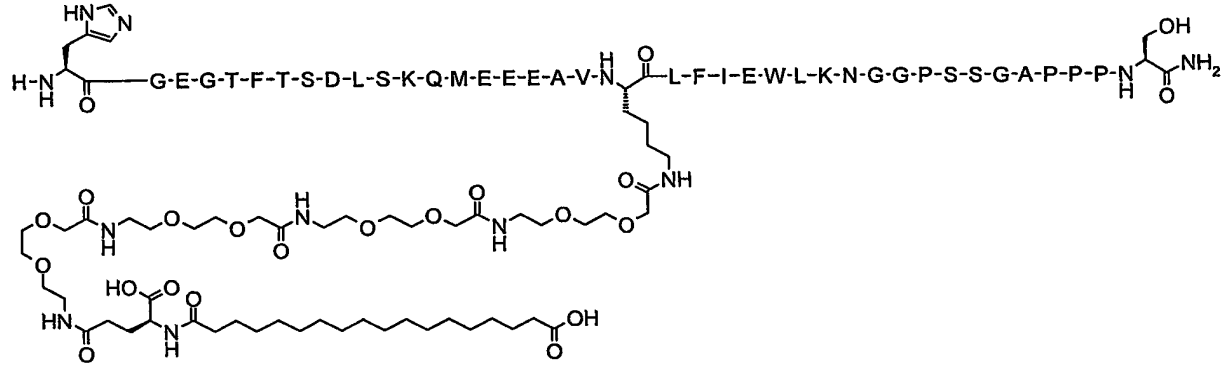
$N^{\varepsilon 20}$(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(2-(4-(17-(carboxy)heptadecanoylamino)-4-carboxybutyrylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl) [Lys^{20}]exendin-4 (1-39)-NH_2



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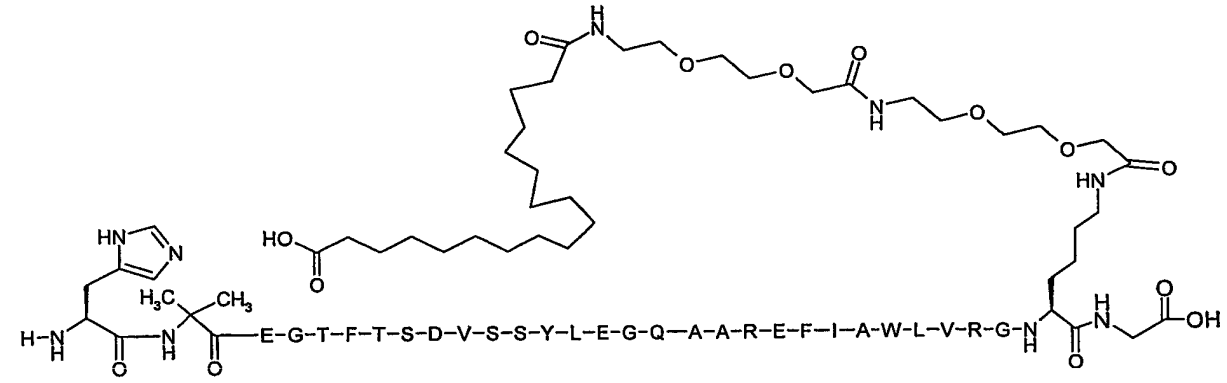
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(17-Carboxyheptadecanoylamino)ethoxy)ethoxy) acetylamino)ethoxy)ethoxy)acetyl) [Aib^{8},$Arg^{26,34}$, Lys^{36}] GLP-1 (7-37)



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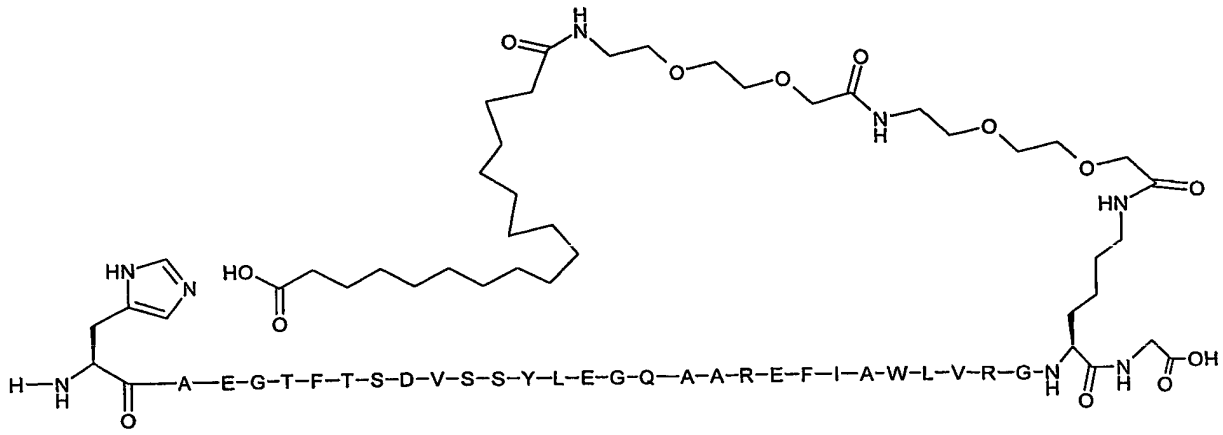
N-$^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(17-Carboxyheptadecanoylamino)ethoxy)ethoxy) acetylamino)ethoxy)ethoxy)acetyl) [$Arg^{26,34}$, Lys^{36}] GLP-1 (7-37)



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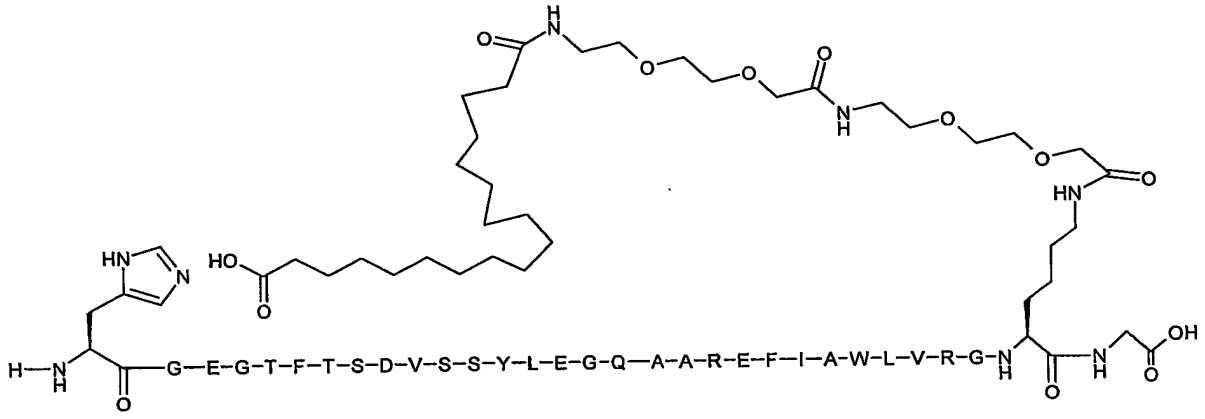
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(17-Carboxyheptadecanoylamino)ethoxy)ethoxy) acetylamino)ethoxy)ethoxy)acetyl) [Gly^{8},$Arg^{26,34}$,Lys^{36}] GLP-1 (7-37)



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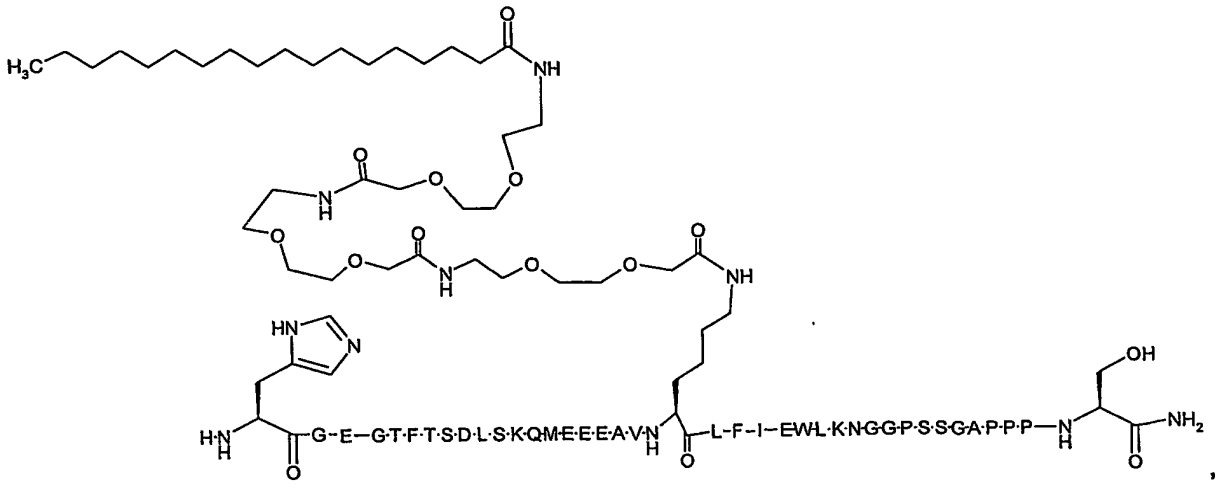
$N^{\varepsilon 20}$-(2-(2-(2-(2-(2-(2-(2-(2-(2-(Octadecanoylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetylamino)ethoxy)-ethoxy)acetyl)[Lys^{20}] Exendin-4 (1-39)amide



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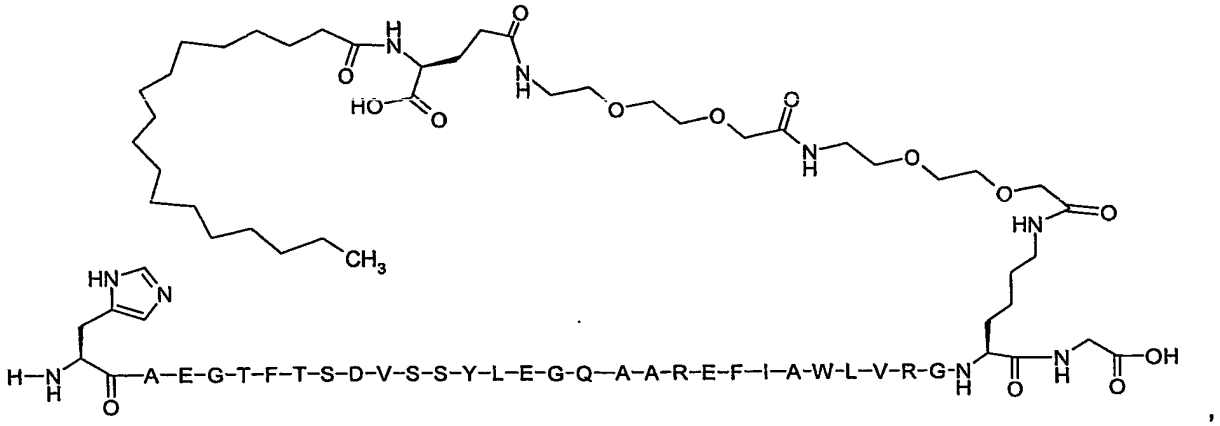
$N^{\varepsilon 36}$-(2-(2-(2-(2-(2-(2-(4-(octadecanoylamino)-4(S)-carboxybutyrylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl)-[$Arg^{26,34}$,Lys^{36}]GLP-1-(7-37)



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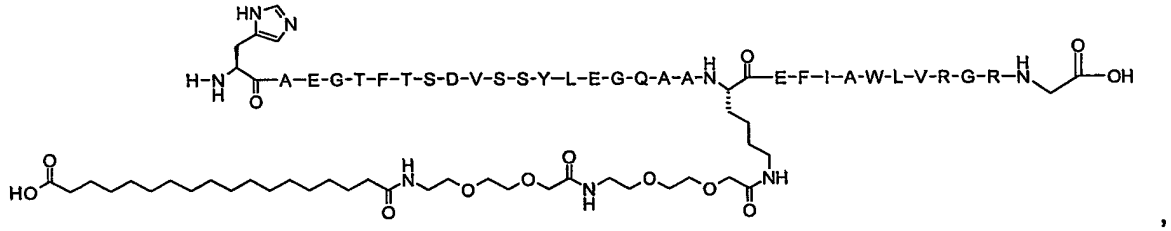
$N^{\varepsilon 26}$-(2-[2-(2-[2-(2-[2-(17-Carboxyheptadecanoylamino)ethoxy]ethoxy)acetylamino]ethoxy)ethoxy]acetyl)[Arg^{34}]GLP-1-(7-37)-OH



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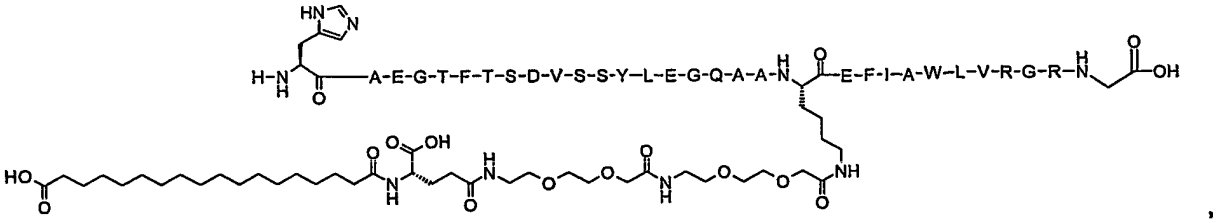
$N^{\varepsilon 26}$-[2-(2-[2-(2-[2-(2-[2-[4-(17-Carboxyheptadecanoylamino)-4(S)-carboxybutyrylamino]ethoxy)ethoxy]acetylamino)ethoxy]ethoxy)acetyl][Arg^{34}]GLP-1-(7-37)-OH



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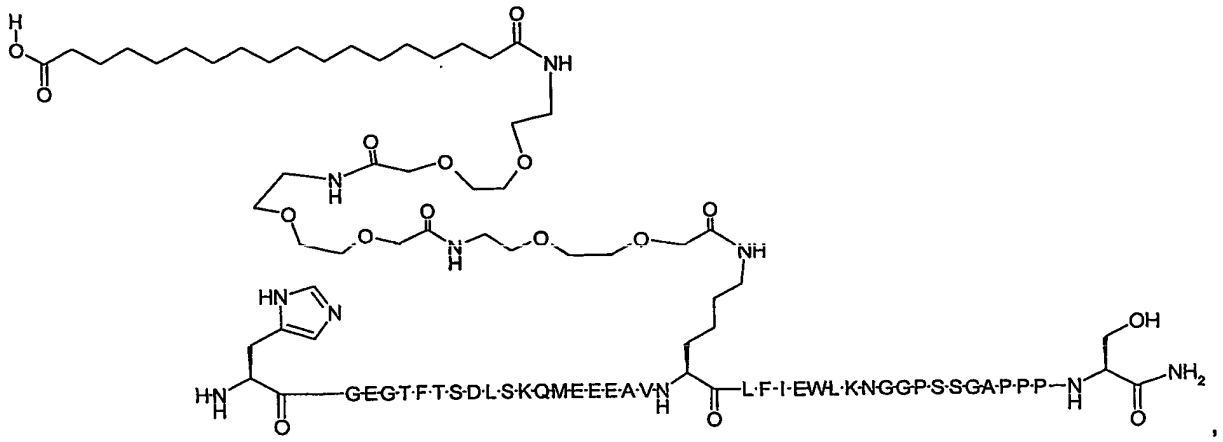
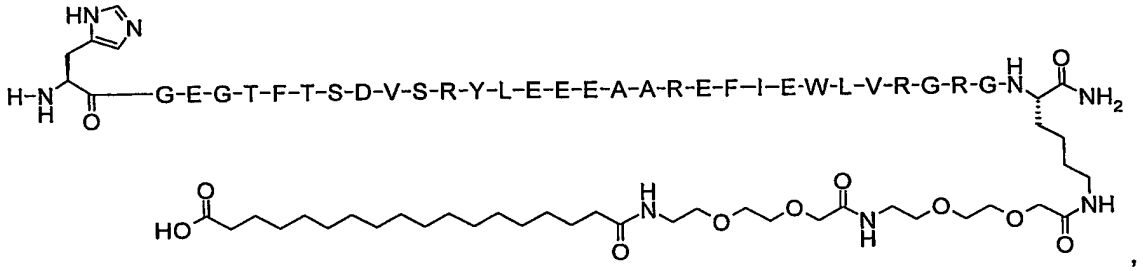
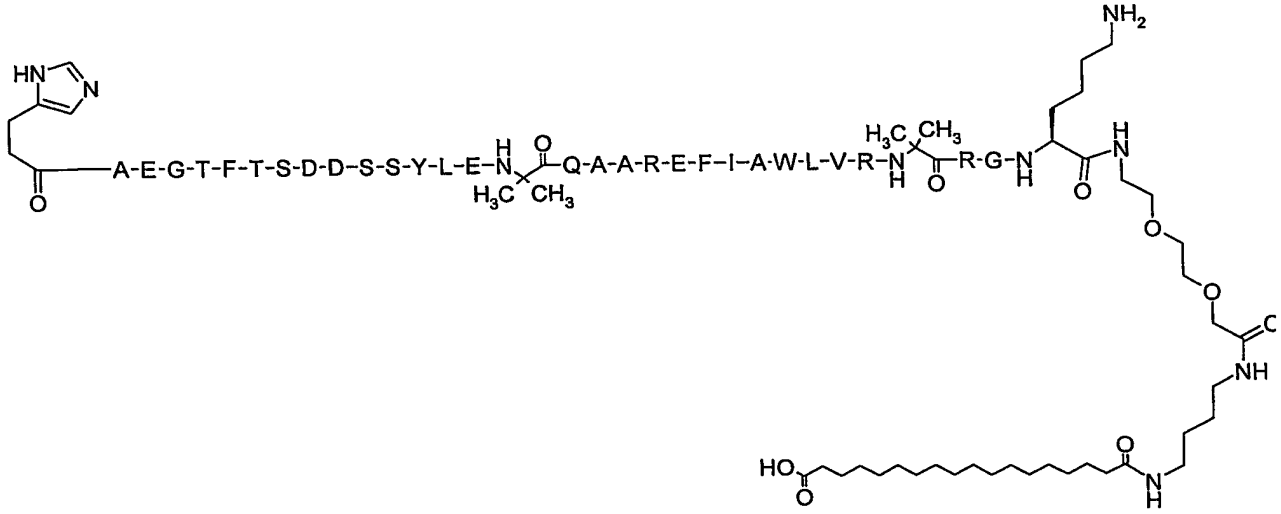
$N^{\varepsilon 20}$-(2-(2-(2-(2-(2-(2-(2-(2-(2-(17-Carboxyheptadecanoylamino)ethoxy)ethoxy)acetylamino)ethoxy)ethoxy)acetyl-amino)ethoxy)ethoxy)acetyl)[Lys^{20}] Exendin-4 (1-39) amide



[Gly^{8}, Glu^{22,23,30}, Arg^{18,26,34}]GLP1 (7-37) Lys(2-(2-(2-(2-(2-(2-(17-carboxyheptadecanoylamino)ethoxy)ethoxy)acetylamino)ethoxy))ethoxy)acetyl)-NH_2

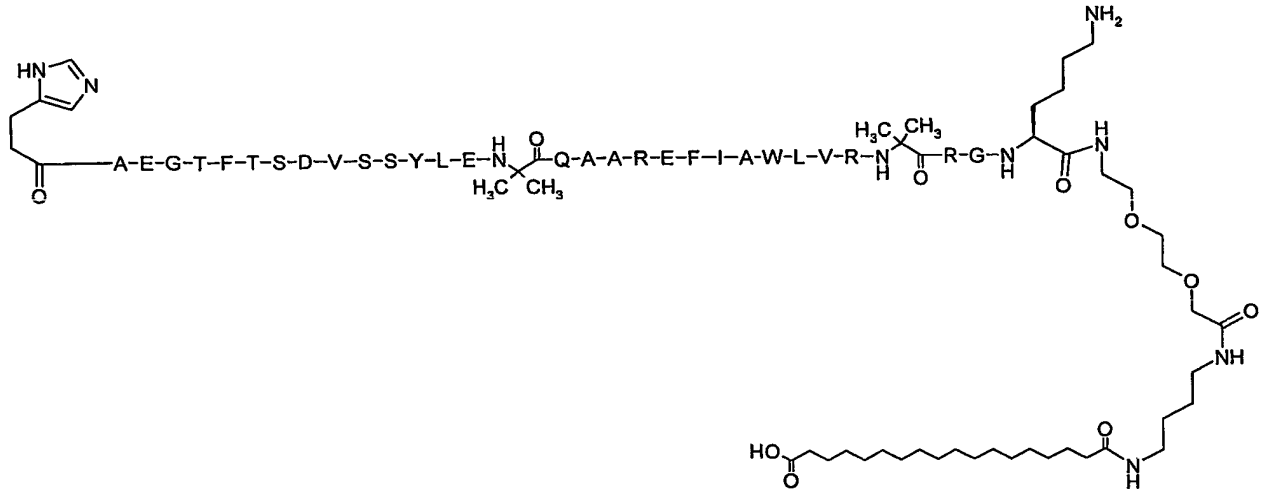


[Imidazolylpropionic acid^{7}, Asp^{16}, Aib^{22,35}]GLP1(7-37)Lys NH((2-{[4-(17-carboxyheptadecanoylamino)butylcarbamoyl]methoxy}ethoxy)ethoxy))



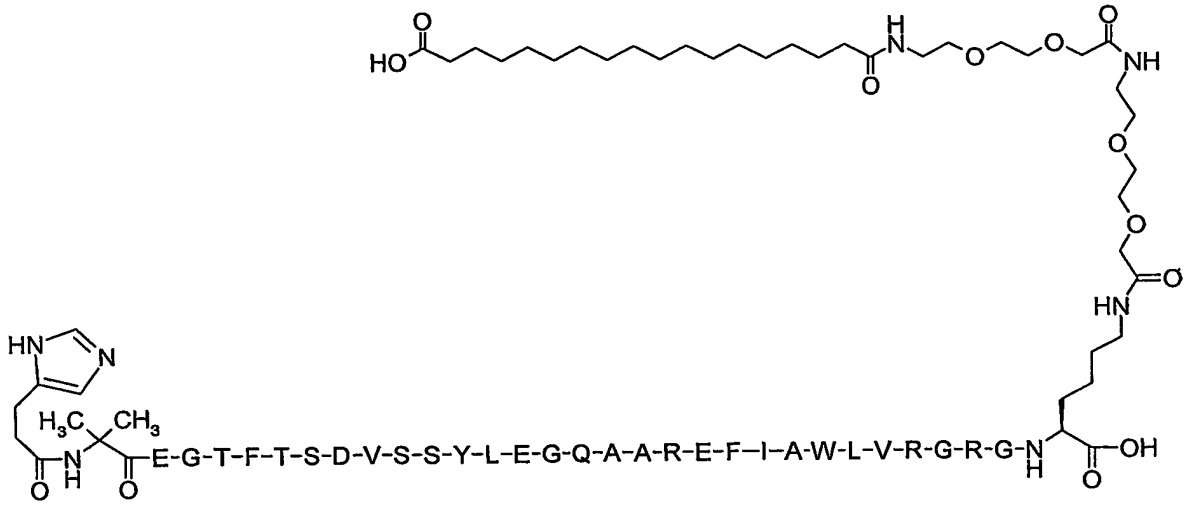
,

[Imidazolylpropionic acid^{7}, Aib^{22,35}]GLP1(7-37)Lys NH((2-{[4-(17-carboxyheptadecanoylamino)butylcarbamoyl]methoxy}ethoxy)ethoxy))



, and

[3-(5-Imidazoyl)propionyl^{7}, Aib^{8}, Arg^{26,34}] GLP-1 (7-37)Lys{2-(2-(2-(2-[2-(2-(17-carboxyheptanoylamino)ethoxy)ethoxy]acetylamino)ethoxy)ethoxy)acetyl)}-OH



56. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide is a GLP-2 peptide.

57. A compound according to claim 56, wherein said GLP-2 peptide is a DPPIV-protected GLP-2 peptide.

58. A compound according to claim 56, wherein said GLP-2 peptide is Gly^{2}-GLP-2(1-33).

59. A compound according to claim 56, wherein said GLP-2 peptide is $Lys^{17}Arg^{30}$-GLP-2(1-33).

60. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide is human insulin or an analogue thereof.

61. A compound according to claim 60, wherein said therapeutic polypeptide is selected from the group consisting of Asp^{B28}-human insulin, Lys^{B28},Pro^{B29}-human insulin, Lys^{B3},Glu^{B29}-human insulin, Gly^{A21},Arg^{B31},Arg^{B32}-human insulin and des(B30) human insulin.

62. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide is human growth hormone or an analogue thereof.

63. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide is parathyroid hormone or an analogue thereof.

64. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide is human follicle stimulating hormone or an analogue thereof.

65. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide has a molar weight of less than 100 kDa, less than 50 kDa, or less than 10 kDa.

66. A compound according to any one of claims 1-37, wherein said therapeutic polypeptide is selected from the group consisting of a growth factor such as platelet-derived growth factor (PDGF), transforming growth factor α (TGF-α), transforming growth factor β (TGF-β), epidermal growth factor (EGF), vascular endothelial growth factor (VEGF), a somatomedin such as insulin growth factor I (IGF-I), insulin growth factor II (IFG-II), erythropoietin (EPO), thrombopoietin (TPO) or angiopoietin, interferon, pro-urokinase, urokinase, tissue plasminogen activator (t-PA), plasminogen activator inhibitor 1, plasminogen activator inhibitor 2, von Willebrandt factor, a cytokine, e.g. an interleukin such as interleukin (IL) 1, IL-1Ra, IL-2, IL-4, IL-5, IL-6, IL-9, IL-11, IL-12, IL-13, IL-15, IL-16, IL-17, IL-18, IL-20 or IL-21, a colony stimulating factor (CFS) such as GM-CSF, stem cell factor, a tumor necrosis factor such as TNF-α, lymphotoxin-α, lymphotoxin-β, CD40L, or CD30L, a protease inhibitor e.g. aprotinin, an enzyme such as superoxide dismutase, asparaginase, arginase, arginine deaminase, adenosine deaminase, ribonuclease, catalase, uricase, bilirubin oxidase, trypsin, papain, alkaline phosphatase, β-glucoronidase, purine nucleoside phosphorylase or batroxobin, an opioid, e.g. en-

dorphins, enkephalins or non-natural opioids, a hormone or neuropeptide, e.g. calcitonin, glucagon, gastrins, adrenocorticotropic hormone (ACTH), cholecystokinins, lutenizing hormone, gonadotropin-releassing hormone, chorionic gonadotropin, corticotrophin-releasing factor, vasopressin, oxytocin, antidiuretic hormones, thyroid-stimulating hormone, thyrotropin-releasing hormone, relaxin, prolactin, peptide YY, neuropeptide Y, pancreastic polypeptide, leptin, CART (cocaine and amphetamine regulated transcript), a CART related peptide, perilipin, melanocortins (melanocyte-stimulating hormones) such as MC-4, melanin-concentrating hormones, natriuretic peptides, adrenomedullin, endothelin, secretin, amylin, vasoactive intestinal peptide (VIP), pituary adenylate cyclase activating polypeptide (PACAP), bombesin, bombesin-like peptides, thymosin, heparin-binding protein, soluble CD4, hypothalmic releasing factor, melanotonins and analogues thereof.

67. A pharmaceutical composition comprising a compound according to any one of claims 1-66, and a pharmaceutically acceptable excipient.

68. The pharmaceutical composition according to claim 67, which is suited for parenteral administration.

69. Use of a compound according to any one of the claims 1-66 for the preparation of a medicament.

70. Use of a compound according to any one of the claims 38-55 for the preparation of a medicament for the treatment or prevention of hyperglycemia, type 2 diabetes, impaired glucose tolerance, type 1 diabetes, obesity, hypertension, syndrome X, dyslipidemia, cognitive disorders, atheroschlerosis, myocardial infarction, coronary heart disease and other cardiovascular disorders, stroke, inflammatory bowel syndrome, dyspepsia and gastric ulcers.

71. Use of a compound according to any one of the claims 38-55 for the preparation of a medicament for delaying or preventing disease progression in type 2 diabetes.

72. Use of a compound according to any one of the claims 38-55 for the preparation of a medicament for decreasing food intake, decreasing β-cell apoptosis, increasing β-cell funtion and β-cell mass, and/or for restoring glucose sensitivity to β-cells.

73. Use of a compound according to any one of claims 56-59 for the preparation of a medicament for the treatment of small bowel syndrome, inflammatory bowel syndrome or Crohns disease.

74. Use of a compound according to any one of claims 60-61 for the preparation of a medicament for the treatment or prevention of hyperglycemia, type 1 diabetes, type 2 diabetes or β-cell deficiency.